

Digital Audio Measurement Standards
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Media Rating Council (MRC)
Interactive Advertising Bureau (IAB)
Radio Advertising Bureau (RAB)
NAB Committee on Local Radio Measurement (COLRAM)

These standards have been developed through the joint efforts of the Media Rating Council (MRC), the Interactive Advertising Bureau (IAB), the Radio Advertising Bureau (RAB), and NAB’s Committee on Local Radio Audience Measurement (COLRAM), with guidance from participating members of each organization. These standards were also reviewed and approved by major buyer-side trade organizations (4As, ANA) and their constituents and provided to the public through a formal period of public comment prior to formal adoption.

Listing of Key Contributors

Abacast	Hulu	Radio One
Accuradio	IAB	Radio Research Consortium
Ad ID	iHeartMedia	Radionomy
AdLarge Media	Integral Ad Science (IAS)	Rubicon Project
AdsWizz	Lotus Communication	SoundCloud
Apple	Media General	Spotify
AURN	Microsoft	Starcom MediaVest Group
BrightRoll	MindShare	TargetSpot
CBS Radio	NAB	Televisa
comScore	NABOB	Townsquare Media
Cox Media Group	National Public Radio	Triton Digital
Cox Media Group Digital	NCC Media	United Stations Radio Networks
Cumulus Media	Nielsen	Universal McCann
ESPN	Nielsen Audio	Univision
EY	NJBA	Univision Interactive Media
FAW	NPR	Univision Radio
GfK MRI	NRG Media	WBEB
Google	OMD	Weigel Broadcasting
Greater Media, Inc.	Pandora	WestwoodOne
GroupM	Podtrac	WideOrbit
GroupM/MEC	Press Communications	Xappmedia
Hubbard Radio	Radio Advertising Bureau (RAB)	ZenithMedia

Digital Audio Measurement Standards – Table of Contents

1. Overview
2. Measurement Definitions
3. Coverage
 - 3.1 Census Measurement of Audio Ads and Content
 - 3.1.1 Browser Distribution
 - 3.1.2 Application Distribution
 - 3.2 Sample-Based Measurement of Audio Ads and Content
- 4.0 Audio Ad, Content and Audience Measurement Guidelines
 - 4.1 Ad Tracking – Technical Details
 - 4.1.1 Player Integration Versus Other Tracking Methods
 - 4.1.1.1 DAAST Integration
 - 4.1.1.2 Linear Advertising versus Dynamic Stream-Stitching
 - 4.1.2 Client Side (and Audible)
 - 4.1.3 Server Side Limitations and Cautions
 - 4.1.2.1 Log File Analysis
 - 4.1.4 Measurement Asset Types, Uses and Controls
 - 4.2 Audience Measurement of Ads and Content – Technical Details
 - 4.2.1 Content Versus Ad Measurement Techniques
 - 4.2.2 Audience Attribution
 - 4.2.2.1 Acceptable Methods
 - 4.2.3 Reported Audience Metrics
 - 4.2.3.1 Gross
 - 4.2.3.2 Unique Devices
 - 4.2.3.3 Unique Devices Unduplicated across Platforms
 - 4.2.3.4 Unique Users
 - 4.2.3.4.1 Registration Counts
 - 4.2.3.4.2 Other Estimation Methods
 - 4.2.3.4.3 Demographic Characteristics
 - 4.3 Companion Advertising Measurement
 - 4.4 Session Measurement
 - 4.4.1 Duration Measurement
 - 4.4.2 Session Boundaries
 - 4.4.3 Inactivity and Session Cut-off
 - 4.5 Measurement SDKs Embedded in Streaming Tools
 - 4.6 Cross-Platform Measurement Considerations
- 5.0 Enhancing Audio Ads and Audience Measurement Accuracy
 - 5.1 Cache Busting
 - 5.2 Filtration for Non-Human Activity
 - 5.3 Other Non-Human Activity

- 5.3.1 Pre-Fetch and Pre-Render
- 5.3.2 Auto-Play
- 5.3.3 Auto-Refresh
- 5.4 On-Line vs. Off-Line Activity
- 5.5 Emerging Considerations
 - 5.5.1 Advanced Advertising (e.g., HTML5 for companion ads)
 - 5.5.2 Targeting within Applications

- 6.0 User Initiated Ad Actions or Other Measures of Engagement
 - 6.1 Tracking Ancillary Actions
 - 6.2 In-Application Facilitated Actions
 - 6.2.1 Demographic Attribution based on Actions

- 7.0 General Reporting Parameters
 - 7.1 General Parameters
 - 7.2 Time
 - 7.3 Location
 - 7.3.1 Traditional Geo-Location Methods
 - 7.3.2 Application Location Services
 - 7.4 Segregating Non-Like Ad Content

- 8.0 Disclosure Guidance

- 9.0 Auditing Guidelines
 - 9.1 General
 - 9.2 U.S. Certification Recommendation
 - 9.3 European/Additional Region/Country Certification Recommendation

- 10.0 References

- 11.0 Supporting Associations

- 12.0 Contact Us

1.0 Overview

These standards are intended to describe measurement techniques and necessary disclosures related to digital audio advertisements and content, which principally includes audio streaming and progressive-download (collectively referred to as digital audio throughout this document although “streaming” or “streams” may be used interchangeably) enabled functionality on computers, tablets, mobile telephones and other applicable internet connected devices – essentially digital audio listening by consumers. Listening and the associated measurement can occur in a browser or application environment requiring a software-based audio player. These standards are not applicable to measurement of digital AM/FM radio broadcasts that are delivered in a traditional over the air manner (although they are applicable to digital streaming of terrestrial broadcasts), or subscription based satellite radio services.

This document is principally applicable to organizations involved in the digital audio industry that develop and enable functionality that facilitates or measures audio-based advertising and content delivery to consumers. Additionally the measurement-related practices can be applied to third-party measurement organizations involved in digital audio. This guideline is intended as a guide to accepted practices, as developed by the MRC, in collaboration with the IAB, Radio Advertising Bureau (RAB), and NAB’s COLRAM. In addition, digital audio content providers, as well as advertising planners and buyers, can use this document to assist in determining the quality of ad and content measurements and the completeness of disclosures.

2.0 Measurement Definitions

Ad Blocking: An automated function that generally is performed by specifically designed software loaded on a Client User’s browser, or within an application, or other content reception device, that blocks certain or all advertising content from being delivered to the User.

Application-Based Audio: Audio that is delivered to a Client User through an audio player that operates in an in-application environment.

Audible Ad Impression: The count of audio advertisements for a campaign over specified time period based on client-side activity records used for the monetization of digital advertising, filtered from invalid traffic activity, excluding those advertisements served during known player-muted state (and with non-zero volume) and excluding those ads audible for less than two continuous seconds (any part of the ad qualifies). Specific Tracking Assets should be used as a source of the impression count (i.e., these should be census-based measures) and this counting should be triggered on the client side (based on activities on a user’s browser/player) to ensure, insofar as possible, that the advertisement was loaded and initiated to the user.

Audio Ad Impression: The count of audio advertisements for a campaign over a specified time period based on client-side activity records used for the monetization of digital advertising, filtered from invalid traffic activity, excluding those advertisements served during known player-muted state (and with non-zero volume). Specific Tracking Assets should be used as a source of the impression count (i.e., these should be census measures) and this counting should be triggered on the client side (based on activities on a user's browser/player) to ensure insofar as possible that the advertisement was loaded and initiated to the user.

Audio Application: An application that is used for the delivery of audio content to a User.

Audio Player: A software program that converts digital content to audible audio signals.

Average Connected Stream Audience:** This metric is applicable to streams with dynamic content and dynamic advertising. The average of connected, active audio streams filtered to exclude invalid traffic activity, with attributed audience for a specific demographic category to the stream, stated on the basis of average minute within the reported daypart. This is generally a metric used for planning advertising campaigns, and should exclude "ad free" or otherwise non-ad-supported content.

** Important Note: For planning purposes and to enable comparability with broadcast metrics, the above Average Connected Stream metrics can be stated on the basis of average quarter hour time periods (instead of average minute); however, we believe these should not include the five-minute crediting rule (rather, minute level crediting should be done, based on duration weighting at the second level), which we believe is unnecessarily imprecise and inflationary in a digital environment (see Average Quarter Hour Metrics definition below), instead they should be duration weighted and they must be labeled as follows – "**ACS-QH**" or "**ACS (specific audience category)-QH.**"

Average Connected Streams:** This metric is applicable to streams with dynamic content and dynamic advertising. The average of connected, active audio streams filtered to exclude invalid traffic activity, and stated on the basis of average minute within the reported daypart. This is generally a metric used for planning advertising campaigns, and should exclude "ad free" or otherwise non-ad-supported content.

Average Quarter Hour Metrics:

Legacy AQH Persons or Ratings: A legacy metric used in traditional broadcast audio measurement representing the number of persons listening to a particular station for five minutes or more out of a clock quarter hour/fifteen-minute segment of the hour (with all instances equal to or greater than five minutes being assigned the entire fifteen minutes), or the aforementioned persons estimate expressed as a percentage of the population being measured (reported at the MSA, DMA or TSA level). These legacy metrics were developed because of limitations in measurement

techniques in the past, principally the lack of granularity in data capture, that required the five-minute crediting rule associated with the metric. The five-minute crediting rule is known to be inflationary and not an optimal representation of audience. AQH metrics include demographics associated with the measurement events. The five-minute crediting rule should not be used to report digital audio with dynamic content and dynamic advertising (ACS or ACS-QH metrics should be used).

Traditional AM/FM broadcasters may desire to report AQH for their simulcast streams to enable comparability with their broadcast metrics; when simulcast with a broadcast transmission, AQH is permissible (if planning and buying are consistently applied at the quarter hour level) using the five-minute crediting rule for consistency and comparability. This can be added to legacy AQH for the station for total line reporting. Where measurement techniques vary between broadcast and digital transmissions (such as in the use of a meter or diary for broadcast measurement and tagging or SDKs for digital measurement) it is desirable for the components of each measurement (Broadcast and Digital components) to be available for reference to users – and in all cases, the practice of combining broadcast and digital components with varying measurement techniques should be fully disclosed to data users.

Streaming AQH (AQH-S): Traditional AM/FM broadcasters or digital pure-play organizations may transmit digital-only content (without a corresponding broadcast simulcast) with static content and ads and may desire to report AQH (if planning and buying are consistently applied at the quarter hour level) for these streams to enable comparability with broadcast metrics; these metrics should be labeled Streaming AQH (or AQH-S) and should not include application of the five-minute crediting rule (rather, minute level crediting should be done, based on duration weighting at the second level).

Dynamic Ad AQH (AQH-D): Traditional AM/FM broadcasters or digital pure-play organizations may desire to report AQH (if planning and buying are consistently applied at the quarter hour level) for streams that include simulcast broadcast content but with dynamic advertising; these metrics should be labeled AQH-D (meaning AQH-Dynamic Ads) and should not include application of the five-minute crediting rule (rather, minute level crediting should be done, based on duration weighting at the second level). These metrics should not be added to legacy AQH or Streaming AQH (if applicable) metrics for the station for total line reporting due to the differing advertising. AQH and AQH-D metrics should be segregated for reporting.

Browser-Based Audio: Audio that is delivered to a Client User through an audio player that operates in a web browser environment.

Client User: A device that interacts with an audio player software application, essentially executing or otherwise reviewing the application. A person that interacts

with a Client User and receives audio content and/or advertising is a User, which is defined below.

Companion Advertisement: Other ads (most often display ads) that appear concurrently with or are otherwise tied to the digital audio ad. These are typically employed to enhance or reinforce the advertising message contained in the digital audio ad to which the companion ad is related. Companion ads should be measured following the existing measurement guidance that is most appropriate for that ad type (for example, companion display ads may be measured using the *IAB Ad Impression Measurement Guidelines for Display Advertising*, in combination with the *MRC Viewable Ad Impression Measurement Guidelines*)

Log File Analysis: In the context of measuring digital audio advertising, this refers to the analysis of log records of digital audio activity sent to a player. While log files that reflect server side activity do not serve as an acceptable basis for digital audio measurements, if the log file activity contains information obtained from the user's browser arising from client-side media consumption activity, it may be an acceptable basis for certain digital audio measurements.

Longitudinal Verification of Stream: The function of measuring that an audio stream continues to execute over a period of time. This type of verification is usually accomplished through software loaded on an audio player that periodically communicates to the measurement organization essentially verifying that the stream continues to execute (rather than being stopped or terminated).

Pre-Fetch Ads and Pre-Render Ads: Pre-fetch refers to a request for and caching of Internet content by an application that occurs prior to, and in anticipation of, the request for the content by a user. Pre-rendering is a similar, but more aggressive technique, where actual page elements and even complete pages may be loaded in a browser prior to a user navigating to a page. Such requests (Pre-fetch and Pre-render) are generally made for the purpose of speeding content access (due to the in advance caching process) if and when the content is actually requested by the user.

Progressive Download Audio: Similar to streamed audio, audio delivered to a player using a progressive download technique delivers the digital audio in a series of downloads that are stored locally on the Client User device. Audio received via progressive download will play in a seamless way, but it will not be in real time as received, as it must be stored before it is played. Throughout this document Streaming Audio and Progressive Download Audio are collectively referred to as digital audio, however "Streams" or "Streaming" may be used interchangeably.

Session: A single application-use event that spans an unspecified period of time of constant or ongoing application activity by a User through the Client User. Sessions are terminated by User actions indicating the closing of the application, or by inactivity levels that meet or exceed defined thresholds. Sessions are generally applicable to the calculation of reach metrics.

Software Development Kit (SDK) Based Measurement: A separate sub-application within the application environment which is directed at performance of certain common functions such as measurement or counting of advertising activity and/or the delivery or storage of advertising or content. These SDK Based functions can be developed by a third party to the application developer and fit into the application, thereby allowing a common measurement SDK to be used across applications. In these cases certain controls, such as software development controls and software and data integrity controls may rest with the SDK developer. SDKs can be developed by a third party measurer and fit into applications in which advertising may be served. Software development controls, software data integrity controls, integration of the SDK into the application and selection of measurement parameters or options to be used by the SDK should be consistently applied, subject to robust quality control procedures and periodically reviewed.

Commensurate with the *IAB/MMA/MRC Mobile In-Application Measurement Guidelines*, ultimately it is the responsibility of the advertising measurement organization to ensure that proper testing and release processes are followed and that controlled development processes were employed in building the original SDK (which may be addressed via Terms and Conditions for SDK use).

Stream-Stitching (can include Server-Side Ad Stitching): A technique by which separate streams of audio may be stitched together to form what appears to the end user to be a seamless (and possibly unique) single stream of audio content. Server-Side Ad Stitching is the use of an intermediary server to insert ads dynamically into streams on the server side or directly embedding ads into content prior to content delivery where a streaming player is not capable of executing dynamic ad responses or tracking impressions and interactions.

Streaming Audio: Audio delivered to a digital audio player in using a continuous connection from the streaming server to the Client User. Throughout this document Streaming Audio and Progressive Download Audio are collectively referred to as digital audio, however “Streams” or “Streaming” may be used interchangeably.

Tracking Assets: An attribute of the digital audio advertisement code that is leveraged to provide information about the ad delivery transaction for measurement purposes. These can be in the form of beacons, redirect-codes, in-app SDK implemented counting signals, etc.

User, Unique User: A person using an application and exposed to advertising messages or content, as determined through registration, User self-identification or some other form of heuristic. A Unique User is an unduplicated person using an application and exposed to advertising messages during a reporting period. For the requirements for reporting a Unique User metric, refer to *IAB’s Audience Reach Measurement Guidelines*, available at www.iab.net.

3.0 Coverage

3.1 Census Measurement of Audio Ads and Content

Digital Audio can be consumed from a browser or from within a digital application. Both consumption methods can be measured through census-like counting techniques, essentially tracking instances of audio consumption through tracking assets such as a JavaScript tag, beacon or application code for all measurable accesses.

In these cases, despite the inference of “census”, there are likely to be certain limitations of coverage (incompatible types of players or browsers, functionality limitations in certain mobile devices, etc.); therefore, it is important for the measurement users to fully understand the true coverage of the reported estimates and what may be excluded from the measurement organization’s ability to measure. Therefore, the coverage of, and material limits or exclusions to, coverage of audio measurements are required to be described by the reporting entity.

3.1.1 Browser Distribution

For browser-based digital audio estimates (ad and/or content), the limitations associated with measurement are generally linked to browser compatibility. In these cases, compatible browsers should be identified by the measurement organization and described. Additionally if material restrictions are applicable, coverage should be sized in terms of the population of Internet and/or mobile web users likely to have this functionality versus the total population and population of Internet and/or mobile web users.

3.1.2 Application Distribution

Digital audio applications can have varying coverage across the user population because of popularity, distribution methods, hardware and operating system compatibility limits or other factors. Therefore it is important that sellers and buyers of application-based advertising, as well as measurers of content, understand and consider the coverage of the application itself.

[This is particularly important if any form of sampling is used in the measurement of application Ad Impressions or other measured metrics.

Limitations in coverage should be considered in decisions about projectability of sampled Ad Impression results originating in applications. See Section 3.2 of this document.]

These standards require disclosure (and, if projection is being considered, quantification) of application coverage to users of digital audio advertising and content measurements. The following coverage areas should be described (and/or quantified), and therefore considered in the use of audio advertising and content measurements.

Disclosures should be made at the lowest level of granularity of category applicable below:

Users – Computer and Mobile

The use of applications is generally limited to the population of compatible computing devices and mobile-capable people within a certain geographic area, e.g., country.

Devices with Platform Compatibility (e.g., Computers, Telephones, Tablets or Other Devices)

The use of an application is restricted to certain device-types within the computer and mobile user base, as well as to certain operating systems within the platform(s).

Downloaded Applications (Versioning, Where Applicable)

The use of a mobile application is restricted to only those situations where the User has downloaded the application to the Client User or can otherwise access application functions. If advertising and/or content delivery, functionality or measurement methodology has been changed between versions of an application, this should be specified and quantified.

Opened, Initialized Applications (Duplication Considered)

The use of a mobile application is restricted to only those situations where the downloaded application has been opened and initialized after downloading. If more than one of the same applications has been downloaded, opened and initialized by a user, duplication should be considered in the reporting of users or in frequency capping situations. In general, de-duplication functions should be applied over the reporting timeframe; for example, for a weekly report, users that open and initialize more than one of the same applications on the same device should be de-duplicated within that week.

Applications In-Use (Duplication Considered)

The use of a mobile application is restricted to only those situations where the opened application is in-use (either on or off-line) in a Session and advertising exposure is taking place. Similar to 3.4 above, duplication should be considered. Users of the mobile application should be de-duplicated over the reporting timeframe for this metric; for example, for a weekly report, users that are using the same application concurrently on the same device should be de-duplicated. Significant volumes/situations of duplicated use should be investigated by the application provider/seller since this can sometimes be indicative of a processing error in initialization or usage counting functions.

As noted above, the aforementioned limitations, where applicable, should be disclosed (and quantified, if projections are made) to users of the measurement data.

3.2 Sample Based Measurement of Audio Ads and Content

Audio Ads and Content can be measured through taking samples of consumers and/or devices and projecting the activities of these samples to the population of users and/or devices. This is traditionally known as panel-based or sample based measurement. Herein we reference the MRC's *Digital Audience-Based Standards* as an existing source of acceptable practices for this type of measurement. Additionally, the *Minimum Standards for Media Rating Research*, published by the Media Rating Council, is also applicable to this type of measurement methodology.

For sample based measurement of any kind, the measurement organization should be diligent about ensuring valid projections are made and that the sample is representative of the population targeted for measurement. Methods for weighting or adjusting data to ensure projectability should be supported by empirical study, and these empirical studies should be updated at least annually. Standard errors around sample-based projections should be disclosed.

4.0 Audio Ad, Content and Audience Measurement Guidelines

The following presents the guidance for audio ad, content and audience measurement resulting from the deliberations of participants from IAB, MRC and Radio Advertising Bureau (RAB). This guidance is applicable to browser and in-application measurement functions of digital audio, regardless of whether they are inserted through an SDK within the player/application or they are native to the application itself.

Audio Ads and Content can be delivered to consumers in two environments: (1) a streaming environment, and (2) a progressive download environment; the latter of these may include Podcasts, in which audio content (and advertising) is downloaded in whole or in part, typically for offline listening. Both the pure streaming and the progressive download environments constitute acceptable facilitation environments for measurement. Throughout this document Streaming Audio and Progressive Download Audio are collectively referred to as digital audio, however "Streams" or "Streaming" may be used interchangeably.

For pure streaming a persistent connection must be maintained between the server of the audio content and ads and the browser/player environment of the user. This persistent connection facilitates measurement by enabling the passing of measurement information real-time from the user's browser/player back to the measurement organization – by definition; these are generally client-side measurement events. In a progressive download environment a persistent connection is not maintained, and instead groups of content/ads are sent to the user's browser/player through a periodic (not persistent) online connection. These groups of content/ads can be variable in length (depending on the sensed connection speed and other communication

environment attributes such as quality of connection) so as to enable a user experience that appears to be a continuous connection. In progressive download environments, measurement events are batched for transmission back to the measurement organization on an opportunistic basis when periodic connections are in place. Between periodic connections it is sometimes difficult to determine exactly what happened in a digital audio session – these situations do not necessarily represent client-side activities.

Progressive download connections promote communication efficiency as well as minimize the consumption of power on user devices.

4.1 Ad Tracking – Technical Details

An ad impression results from the measurement of an advertising exposure occurrence, contained within real-time or stored and transmitted digital audio usage activity records, measured at the client side, sourced from a fully downloaded, opened, initialized player/application in a valid session with a client user. The audio advertising exposure occurrences must meet or exceed the minimum requirements summarized below and must be filtered to exclude invalid digital traffic.

This guideline requires measurement to be based on client-side player/application activity, sourced from player/application use activity records containing advertising occurrences; the extent to which any such activity has been ascribed or inferred should be disclosed, and activity based on inference should be segregated for reporting purposes, if material (equal to or exceeding 5% of reported counts at the granular reporting level). In certain limited cases, log file based measurement data can be acceptable; these cases are described further in section 4.1.1.

Note: Certain measurement implementations may preclude direct client-side measurement, including offline podcast measurement. In these situations, certain server side and log file techniques may be permissible for metrics that do not rely on longitudinal data observations (such as Session Starts or Downloads) with appropriate quality control to ensure data is accurate and complete and full disclosure of the circumstances precluding client-side measurement.

An Audio Ad Impression should not be counted if known to be not audible (through a known player mute state and with a non-zero volume) or where exposure is impaired in a significant manner. In general, muting at the device level is difficult and sometimes impossible to determine with current technology structures, so this is not necessary to account for at the present time.

Ads that are blocked at the device level through the use of ad blocking technology should not be included in served or audible counts; in the case of audio ads, this blocking may take the form of technology that skips the ad, or mutes that ad within the player or browser. Ad content may be blocked

separately from measurement assets, and measurement techniques that do not account for actual ad delivery may be susceptible to counting inaccuracies caused by ad blocking.

In addition to not being associated with a known mute player state and having a non-zero volume, a valid Audible Ad Impression should have a minimum continuous duration of two seconds (during any part of the advertisement).

Event based audio ads should be described in terms of attributes and trigger criteria.

The audio ad measurement organization should have sufficient controls to determine that:

- The player/application was downloaded, opened and initialized as designed on the client user prior to the measured session.
- The player/application itself was functioning as intended during the session. Sessions and Ad metrics associated with “faulted” conditions (situations of functionality issues with the player/application, errors or non-working conditions) should be tracked and segregated from fully functioning Sessions and Ad metrics.

Player/Application transaction records, which contain evidence of ad exposure, can be derived and transmitted to the measurement organization: (1) on a real-time basis during listening execution, (2) in batched groups that are transmitted periodically (in whole or in part) during an on-line session, or (3) first stored during off-line use and later transmitted during a subsequent on-line session (not necessarily associated with the same application) of the applicable client user.

In situations where the connection speed of the client-user can impact counting effectiveness or the counted activity itself, the measurement organization or SDK developer, if applicable, should make reasonable efforts to ensure counting is accurate. Editing and error handling rules should be developed to detect, segregate and report counting situations with suspect accuracy related to connection speed.

To consider an ad measurement valid, the timing of the ad must be included within the campaign’s reporting period and must be prior to billing for that period based on the pre-determined billing cycle.

4.1.1 Player Integration Versus Other Tracking Methods

Measurement of digital audio can occur through several methods: (1) integrated player tracking, leveraging tags and other forms of activity collection using player internals, (2) integrated in-application measurement through application functionality, such as internal codes or the use of measurement SDKs, and (3) acquisition of log file information from digital audio content or ad-serving organizations and analyses based on log files.

Each of these methods has different measurement implications. The preceding language in Section 4 describes general measurement requirements; below specific implications of each of the three measurement methods are discussed.

Integrated Player or In-Application Measurement

Measurements based on transactions from player or in-application integrated techniques are acceptable for all types of digital audio metrics, as long as they encompass client-side counts of activity records and as long as there is a longitudinal and periodic confirmation of audio session continuance. Additionally, processing of integrated metrics should have sufficient editing controls to ensure assessments are made as to length of session and filtration of unusual, excessively continuous, erroneous or unrecognized activity records.

Beacons or other assets used to periodically confirm session continuance should be frequent enough to ensure a reasonable likelihood of an uninterrupted state (upon successful receipt of successive confirmation events) as well as a short padding period for the last successful confirmation within a session (the assumed ending record).

Log File Analysis

Log files containing server side records of activity sent to a player are generally not acceptable as a basis for digital audio measurements.

There are situations where log files can contain client side records based on reported client-user player activity; in these cases certain digital audio measurements can be based on these log files. Acceptable cases are generally limited to pure streaming environments (where the constantly open, connected state can be leveraged to create client-side log files). In cases where a progressive download environment exists to deliver the digital audio ads and/or content, because activity between downloads is uncertain, log file records are generally not acceptable (because of limitations similar to a server side environment).

Log file measurements on the client side are generally acceptable for snapshot type measurements or counts (such as ad impressions delivered or open streams at any given point in time), and less accurate for assuming longitudinal continuance of digital audio activity (duration based metrics) or sessions. The use of client side log files for duration measurement requires support evidencing the accuracy of the approach from the measurement organization – the burden of proof is on the measurement organization in these cases.

Other Notes:

- (a) If player/application functionality, including advertising content available, advertising placements or other functions differs depending on the type of device being used, these differences should be described, quantified and segregated for reporting purposes. If these functionality differences are triggered by the compatibility of the application with certain authorized hardware this situation should also be described in the context of application coverage.

Internal Controls for Application Environments or In-House Developed Players -- The general internal controls present at the organization that develops or approves the application for release are a critical component of the overall operating effectiveness of advertising measurement associated with the application. These controls do not have to necessarily reside at the original application development/programming facility; however, certain levels of quality control should be present at some stage of application rollout. Ultimately it is the responsibility of the advertising measurement organization to ensure that proper testing and release processes are followed and that controlled development processes were employed in building the original application.

In general, the audio ad and content measurement organization should have sufficient controls to ensure:

- Development of and changes to players/applications are authorized, tested and approved prior to being rolled out for User download (release). Segregation of versions should be maintained where advertising functionality has been changed.
- Access to player/application software associated with advertising, storage of ads, ad placement and serving functionality is restricted to authorized personnel (non User) and programs. Users should not have the ability to alter advertising content.
- Advertising related user-set parameters are documented, recorded and included in data transmissions back to the measurement organization if changed.
- The player/application is documented, and advertising associated functionality is documented.
- Only authorized served ad content is accepted as input by the player/application, regardless of whether that content is served real-time or stored for later use.
- Any calculations or data accumulation processes within the player/application have been tested for efficacy.
- Data transmissions from players/applications (whether real-time

or batched) are complete, accurate and protected from modification.

- Errors and advertising data rejected for quality purposes is logged, evidence supporting the error is retained and errors are followed up on to correct potential cases of systematic or recurring issues.

4.1.1.1 DAAST Integration

The IAB has promulgated a Digital Audio Advertising Serving Template (DAAST). Similar to the prior templates produced for video and our video measurement guidance, these digital audio standards require adoption of this template, when available, or other future applicable IAB template standards (such as VAST 4.1).

4.1.1.2 Linear Advertising versus Dynamic Stream-Stitching

For certain streaming players, the player may not be capable of executing dynamic ad responses or tracking impressions and interactions. In these cases, an intermediary server is needed to insert ads dynamically into the stream on the server side prior to content delivery (called ad-stitching among other terms; stream-stitching, ad insertion, ad pre-loading, etc.). In server-to-server and server-side ad-stitching, the player may not be able to process ad tracking, and the ad-stitching service cannot access cookies used in traditional client-side tracking. Instead, the ad-stitching service must identify devices where ads play by a combination of other methods.

When an ad-stitching service is involved, the ad-stitching server may send tracking on the player's behalf, but this tracking may be limited and not fully able to satisfy client-side measurement requirements. This server-to-server tracking process may also be problematic because all the tracking is coming from one IP address and may be subject to IVT detection techniques. Certain measurers may use custom integrations or leverage aspects of the IAB's DAAST, which allows header identification of IPs. Custom solutions should be clearly disclosed as part of methodological documents and should also comply with the client side counting requirements within this document. To the extent that measurers are not able to measure ad delivery discretely in these environments, they should be included and dimensioned within limitation disclosures discussed above.

4.1.2 Client Side (and Audible)

These standards require measurements on the client-side and for Audible Ad Impressions, the measurement organization must have reason to believe the audio content is audible. In this case, "audible" means: (1) not muted at the player, with (2) volume in a non-zero state and (3) meeting or

exceeding two continuous seconds of exposure. As long as these conditions can be established, focus of the player is not a requirement to be audible (i.e., the player can be in the background).

4.1.3 Server Side Limitations and Cautions

4.1.2.1 Log File Analysis

As described previously, using log files to capture longitudinal or duration-based digital audio measurements has significant weaknesses. Log-files that constitute server side transaction records are generally not acceptable for measurement of any type of digital audio activity because they are subject to overstatement and significant inaccuracy. Additionally, log files are not considered acceptable for measurement of digital audio activity in progressive download environments.

Note: Certain measurement implementations may preclude direct client side measurement, including offline podcast measurement. In these situations, certain server side and log file techniques may be permissible for metrics that do not rely on longitudinal data observations (such as Session Starts or Downloads) with appropriate quality control to ensure data is accurate and complete and full disclosure of the circumstances precluding client-side measurement.

4.1.4 Measurement Asset Types, Uses and Controls

Acceptable measurement tracking assets include JavaScript Tags, Beacons, Embedded Player Transaction Records or In-Application Messages, Codes or Activity Records. In each case, these tracking assets should be examined to ensure they are from fully functional audio consumption tools (such as streaming or progressive download players).

Tracking assets should be subject to editing, quality control checks and filtration for unusual activities that may be indicative of non-human situations (which would need to be removed from legitimate measurements).

Tracking assets should have a reasonable active “life” during which they represent legitimate events. The passage of excessive time could indicate non-legitimate activity.

4.2 Audience Measurement of Ads and Content – Technical Details

This section of the digital audio measurement standards describes audience measurement technical details related to digital audio audience and advertisements. Overall, for simplification purposes, it is desirable (but not required) for the same technical implementations to measure both audiences,

content and ads wherever possible. Technical implementations that facilitate measurement (tracking assets, etc.) may vary between audience and ads because of differences in the type of decisions being made by measurement data users. For example, content audience measurements are generally oriented to provide “planning” types of inferences as to the size, location, demography, reach & frequency, types of users attracted to the content, how the content is accessed, time spent, device/user behavior tracking, and longitudinal device/user movements across content. Planning metrics are generally stated on the basis of Average Connected Streams for a specific time period and/or audiences to Average Connected Streams, as defined herein. Measurement for digital audio advertisement delivery (meaning an ad was served or audible [had an opportunity to be heard]) represents a counting orientation such as a Served or Audible Ad Impression or audience attributed reach and frequency of discrete exposure to the advertisement. Both advertisement, audience attributed advertising and planning type metrics related to content can be subjected to discrete gross rating point measurement, assuming proper granularity of tracking assets and audience attribution methods. In cases where the measurement does not rely on a full census orientation, measurement at a local level may be challenging because of sample size and/or data quality considerations (quality considerations may include coverage, representation of the population being measured, data loss, bias, etc.).

Measurement of digital audio advertisement delivery and ad or content audiences are generally performed separately, versus the generalized measurement orientation that currently exists for legacy broadcast media (inferring the same audience to the content and advertising). **It is critically important that measurement organizations consider varying types of content and advertising delivery models when they are establishing measurement products, measurement and reporting.**

Today’s content and advertising delivery models can include:

(1) A multicast orientation with a dynamic ad model, where differing content is sent to each device (essentially all devices that access the content vehicle access unique content), with each device also receiving different advertisements which are controlled and inserted separately and where the user may have a certain level of control over the listening environment in areas such as skipping songs or advertising. In this model the individual streams are sometimes aggregated into a “streaming network” for the purpose of delivering an ad campaign to multiple listeners. This orientation should be reported using ACS or ACS-QH metrics.

(2) A broadcast orientation with a dynamic ad model, where a single set of content is sent to multiple devices simultaneously (essentially all devices that access the broadcast); however, devices are intended to receive different advertisements from the broadcast over the air origination which are controlled

and inserted separately. This orientation should be reported using Dynamic Ad AQH (AQH-D) metrics (if planning and buying are consistently applied at the QH level).

(3) A broadcast orientation with a static ad model, where a single linear set of content and advertisements are sent to multiple devices simultaneously (essentially all devices that access the broadcast), with all receiving the identical set. This orientation may be reported as legacy AQH with a corresponding broadcast simulcast, but should be reported using Streaming AQH (AQH-S) metrics if no corresponding broadcast simulcast (digital-only) is present (and if planning and buying are consistently applied at the quarter hour level).

It should be noted that a model in which the same ads but different content is sent to users simultaneously is possible, but has not been widely used to date and is therefore not covered at this time in these standards.

Specifically, different types of content and advertising delivery models should be separately tracked and segregated for reporting purposes and clearly described to users of measurement and audience data. For audience planning purposes (pre-buy), users may evaluate potential audiences reachable by a digital audio delivery model; these orientations could be on the basis of the total delivery model audience, market audience or within projected demographic breaks. In all cases, the measurement service should be able to demonstrate that planning bases represent realistic scenarios whereby actual ad campaigns can be executed, not merely a “theoretical reach”.

Measurement approaches for ad delivery may include, but are not necessarily limited to, the following:

Ad Delivery Monetization Metrics:

Measurement of each individual ad exposure within the stream (served or audible ad impressions). Since discrete ad transactions are measured, this method can be applied to all ad delivery models described above.

Planning Metrics:

- A. Measurement of the Average Connected Streams (by time delineation of the average minute) for the stream or streaming network over a defined period of time.
- B. Measurement of the Average Connected Stream Audiences (by time delineation of the average minute) for the stream or streaming network over a defined time period, inclusive of both ads and content, for a specific demographic group.

Important Notes:

- (1) Consideration should be given to the sufficiency of sample sizes and/or data coverage adequacy in development of the Ad Delivery and Planning metrics above.

- (2) These metrics should be filtered to exclude invalid digital traffic.
- (3) These metrics should be counted using client side counting to ensure that the ad and/or content have actually been loaded and presented to the user.
- (4) Audible metrics (analogous to viewable impressions in audio-visual media) should only include transactions without a known player mute state and meeting or exceeding two continuous seconds of exposure.
 - a. **Note:** In today's digital audio measurement, "audibility" is considered to be an imperfect analogy to the "opportunity to see" proxy that viewability is in other digital measurements. This is because audibility can be determined only at the player level; there may be instances where audio is muted at a device level, but the metric still would be considered "audible" if the player itself was not muted. Therefore, digital audio measurement, in which audibility at the player level is effectively projected to infer that the measured event is also audible at the device level, can lend itself to more false positive identifications of audibility than does viewability measurement, assuming the event to be measured in the latter instance is indeed measurable for viewability. Despite this limitation in audio measurement, the definition of "audibility" and its application as noted in these Digital Audio Measurement Standards represent, in our judgment, current best practice for digital audio measurement. We recognize that this is an entirely new metric/approach for streaming audio measurement, i.e., the consideration of audibility. The use of this concept is consistent with other media types where opportunity to see has been adopted as a critical measurement point. The two continuous second time threshold is consistent with other environments that take time to load and execute, with user recognition that the content represents an advertising message developing over time, but this approach as applied to audio-specific environments requires further study.
 - b. **Note:** MRC will undertake a future project to further study the appropriateness of the two continuous second time threshold for exposure (opportunity to see "or hear" in audio); this project will include an audio-centric industry working-group.
- (5) For planning purposes, the above Average Connected Stream metrics can be stated on the basis of average quarter hour time periods (instead of average minute); however, they cannot include the traditional five-minute crediting rule (rather, minute level crediting should be done, based on duration weighting at the second level) present in conventional AQH, which is unnecessarily imprecise and inflationary in a digital environment (see Average Quarter Hour Metrics definition), and they must be labeled as follows – "**ACS-QH**" or "**ACS (specific audience category)-QH.**"
- (6) These metrics should exclude activity to "ad free" or other forms of non-ad-supported content.

These standards recommend that measurement occur in a way that allows for the most discrete measurement of the audience as well as advertising contained within the stream as is possible, in consideration of the advertising model employed and the characteristics of the technology used to deliver the audio. For example, in advertising model 1 noted above (different content, different ads), because different ads are sent to each user, each ad should be measured discretely, and audiences for each ad/ad campaign should be reported. Similarly, for advertising model 2 (common content, different ads), since different ads are delivered to listeners within a common stream of content, these ads should be measured and reported discretely as well; please note that this does not preclude the reporting additional measurements that incorporate measurements of the content portion of the stream. For advertising model 3 (common content, common ads), it is not required that the ads be measured discretely (although again, it is not precluded), since under this model all ads are delivered in a common way to listeners, along with the stream’s content.

In short, under advertising model 1, audiences for ads within the stream should not be inferred based on measurements other than those that measure each discrete ad occurrence.

User and location attribution, audience data modeling and other types of audience measurement inferences should also consider these models and likely need to be applied separately based on delivery model.

Summary of Audio Orientations, Metrics and Calculation Notes:

Content Model	Ad Model	Metrics Described Here-In	Five-Minute Crediting Rule Present	Filtration Required	Non-Mute Audio Required
Broadcast:					
Static	Static	AQH	Yes	No	Yes
Digital Audio:					
Static ¹	Static ¹	AQH ¹	Yes	Yes	Yes
Static ²	Static ²	Streaming AQH ² (AQH-S)	No	Yes	Yes
Static	Dynamic	Dynamic Ad AQH (AQH-D)	No	Yes	Yes
Dynamic	Dynamic	ACS, ACS Audience, ACS-QH	No	Yes	Yes

1: Represents a digital streaming model with static content and ads that has a corresponding broadcast simulcast.

2: Represents a digital streaming model with static content and ads that does not have a corresponding broadcast (digital-only).

Note 1: In Lines 1 through 4 (all models except dynamic content and ads), the AQH metric is authorized if planning and buying are consistently applied at the quarter hour level.

Note 2: Simulcast streaming of broadcasted audio is designed to be additive to the broadcaster (Line 2) via total line reporting, hence allowance of the five-minute crediting rule. However, where measurement techniques vary between broadcast and digital transmissions (such as in the use of a meter or diary for broadcast measurement and tagging or SDKs for digital measurement) it is desirable for the components of each measurement (Broadcast and Digital components) to be available for reference to users.

Note 3: Lines 3-5 are considered digital pure-play scenarios and therefore cannot use the five-minute crediting rule. These are also not eligible for total line reporting where applicable.

Note 4: The AQH and total line reporting rules apply regardless of time-shifting. Future iterations of these standards may include differential treatment of time-shifted listening as warranted.

For digital audio measurements of static content and advertising that continue to report AQH metrics using a five-minute crediting rule (which is allowed for comparability purposes with the broadcast static model), because comparisons may also occur with other digital audio orientations, the measurer is encouraged to disclose a index intended to allow the normalization of the AQH metric to what would be AQH without the five-minute crediting rule.

To develop this index the measurer should, on a periodic basis, process a large representative set of digital audio data with and without the five-minute crediting rule, measure the difference and develop the index. The empirical support for this index should be retained for auditor review. This index should be described and presented where the AQH calculation is described within methodological disclosures.

4.2.1 Audience Versus Ad Measurement Techniques

Measurement of audience and advertisements generally consists of counts of Internet users accessing content and/or advertisements through methods including browser/player combinations and applications, filtered to remove suspected non-human and invalid activity.

Measurement of audiences is a difficult process and ultimately audience means “people” or streaming users, not devices. However, many metrics have evolved based on measurement of devices or assets on devices as an “implied” measurement of people. Keep in mind these measurements are surrogates, sometimes inaccurate in their representation of true people or users. The foundation for these surrogate measurements (based on logs, a tag or beacon impression, unique cookie, unique browser/player, application or a unique device) is a measurable incidence of relevant activity, unduplicated for that measurement asset and related to the applicable content or advertisement during the reporting period. Ad

delivery activity should be based on the “client-initiated” concept of counting, whereby listener activity (the request or transaction from the user) originates from a user’s browser/player or application – i.e., the client.

Unique Users is a measurement of people, and very difficult to accomplish in an accurate manner because of various complexities surrounding accurate user identification.

Measurements of digital audio are required to be filtered for general invalid traffic and it is strongly recommended that measurement organizations also filter for sophisticated invalid traffic. Guidance for these processes is contained in MRC’s *Invalid Traffic Detection and Filtration Guidelines* issued in 2015. Further, if audience data is included in the reported metrics, consistent with the MRC’s *Digital Audience-Based Measurement Standards*, filtration for sophisticated invalid traffic (SIVT) is required.

Activity that is associated with or arising from the use of an application should only be counted towards digital audio measurements if they arise from a valid downloaded, initialized and open application as described in the [IAB/MMA/MRC’s In-Application Measurement Guidelines](#). Off-line consumption of activity within an application can be counted towards audio audience measurement if In-Application Measurement Guideline criteria are met.

As stated above, content and/or advertisements can be measured at varying levels (using specialized tracking assets) including tag or beacon impression counts, unique cookies, unique browsers, unique devices as surrogates for people, and unique users a measurement of actual people. These levels are described in other IAB measurement guidelines, and are briefly summarized below as they relate to digital audio:

Tags or Beacons or Audio Codes: Tracking assets placed within an audio advertisement or within audio content that enable counting of specific accesses at a census level. These generally do not contain specific audience attribute information, but they can form the basis of certain types of audience measurement in hybrid or data integration methodologies.

Unique Cookies (people surrogate): A count of unique identifiers (information stored within the browser called a “cookie”) that represents unduplicated instances of digital audio Internet activity (generally visits) to content or advertising during a measurement period. There are extensive rules associated with use of cookies as a basis for audience measurement, which are documented in the *IAB’s Audience Reach*

Measurement Guidelines as well as the MRC's *Digital Audience Based Measurement Standards*.

Unique Browser/Player Combination or Application (people surrogate): An identified and unduplicated cookie browser with a loaded player (an identified combination) or a software application that is used to access digital audio content or advertising. Similar to Unique Cookies, use of unique browsers as a basis for audio audience measurement is described in the *IAB's Audience Reach Measurement Guidelines*, the *IAB/MMA/MRC Mobile Application Advertising Measurement Guidelines* and the MRC's *Digital Audience Based Measurement Standards*.

Unique Devices (people surrogate): An unduplicated computing/communication device with loaded browser/player combinations or applications used to access digital audio content during a measurement period. A count of unduplicated devices necessarily accounts for multiple browser/player or application usage on an individual device. This measurement can contribute to an understanding of the number of unique users if it informs the number of users who access digital audio content that are attributable to a single device.

Unique Users (actual people, audience): An identified and unduplicated individual listener to audio advertising or content during a measurement period.

Sites, properties or applications with multiple domains should consider special sharing rules for measurement information to increase accuracy and provide greater leveraging of unique attribution methods as well as facilitating de-duplication. If cookies are used, persistent cookies should be established with a lengthy expiration time, meant to approximate the useful life of the browser technology.

Reach and Frequency Estimation: Models and planning tools that are used to estimate reach and frequency have not yet been modified to account for the provisions of this standard; we encourage the updating of these tools as soon as possible.

4.2.2 Audience Attribution

4.2.2.1 Acceptable Methods

4.2.3 Reported Audience Metrics

4.2.3.1 Gross

4.2.3.2 Unique Devices

4.2.3.3 Unique Devices Unduplicated Across Platforms

4.2.3.4 Unique Users

4.2.3.4.1 Registration Counts

4.2.3.4.2 Other Estimation Methods

4.2.3.4.3 Demographic Characteristics

[The Guidance for Sections 4.2.2 through 4.2.3.4.3 to be addressed in *MRC's Cross-Media Audience Measurement Standards*, currently in-process.]

4.3 Companion Advertising Measurement

Digital audio ads are sometimes accompanied by other digital ads in a format other than audio. These are frequently display ads that may be designed to enhance or reinforce the message of the audio ad. Such ads are known as companion ads, and should be measured following the existing measurement guidance that is most appropriate for that ad type (for example, companion display ads may be measured using the *IAB Ad Impression Measurement Guidelines for Display Advertising*, in combination with the *MRC Viewable Ad Impression Measurement Guidelines*). Whenever such a companion ad is served along with the digital audio ad, a mechanism for tracking all the ads, whether separately or combined, should be provided by the ad server, and the methods for tracking these ads should be fully disclosed.

4.4 Session Measurement

4.4.1 Duration Measurement

Measurement of duration of a digital audio session can be difficult. In general, a session should capture activity thought to pertain to a continuous listening event. Accordingly a significant period of inactivity (for example 30 minutes or multiple unsuccessful session beacon attempts) can cause the assumed end of a session. Duration can be padded to a reasonable assumed ending based on a short period after the last successful beacon continuity record. The editing rules employed by a measurement service in this area should be supported by empirical evidence based on relevant research.

Additionally, other duration-oriented metrics can be reported, such as completions and listen-through-rates, but these metrics should be calculated consistently with the requirements of the IAB's *Digital Video Measurement Guidelines* where duration measurement is more fully elaborated.

4.4.2 Session Boundaries

A session exists from the first measured action of the digital audio user to initiate the series of events that constitute the session, until such time that the session is terminated, either through a specific measured action by the digital audio user, or by the application of inactivity rules that specify termination of the session after a defined period during which no user activity is determined.

4.4.3 Inactivity and Session Cut-Off

A Session is measured from the start of the user's audio listening event to the end-time of use of the audio event, as long as the player/browser/application does not encounter inactivity (application idle, or no other events) of a pre-defined duration. In a pure streaming environment these session durations are fairly easy to determine, especially if there is a periodic confirmation of continuance of the stream (such as through the use of a periodic confirmation beacon).

For Applications, inactivity rules may vary based on the type of application involved; for instance, some applications are designed for long periods of inactivity (such as long-form audio, or sporting events, to name two examples), in which case a longer inactivity threshold may be more appropriate than in another situation where longer periods of inactivity are not normally to be expected. In all cases, inactivity rules applied must be fully documented and disclosed.

- The mobile environment generally allows for a greater range of options for determining user activity than are available in traditional online environments, and these should be leveraged in making inactivity determinations. For instance, screen dims and darks, or screen touches, can be used in helping to make inactivity determinations.

The measurement organization should establish session cut-off rules for otherwise functional sessions of inordinate length – for example, sessions of greater than 12 hours. These rules should be based on empirical study if they exceed 12 hours, with the burden of proof being on the measurement organization.

4.5 Measurement SDKs Embedded in Streaming or Progressive Download Players\Tools

In SDK oriented measurement environments, the application developer or seller should have sufficient confidence that the above controls are maintained for the SDK functionality. Development of this confidence can encompass a periodic review and/or testing conducted by the application developer, in which case the application developer then is taking responsibility for the controls at the SDK developer. Another approach is for the SDK developer to itself be audited by a third party with some form of observable assurance provided such as certification, accreditation or a third-party CPA attestation. In this latter case, if the application developer is looking to become certified or accredited itself, the auditing organization can build a case for relying on the SDK assurance (depending on conditions of that assurance).

We encourage the development of open-source measurement SDKs related to digital audio environments. These tools, when commonly used, will bring greater consistency to measurement across media outlets.

4.6 Cross-Platform Measurement Considerations

Measurement of digital audio should have a reasonable basis to be considered client side, confirmed activity, as well as to be audible (an opportunity to hear). These attributes will ensure a necessary amount of comparability with other media genres for the same advertising campaign.

Digital Audio and streaming audio will be included in the *Cross-Media Audience Measurement Standards* currently under development by MRC.

5.0 Enhancing Audio Ads and Audience Measurement Accuracy

The following areas should be considered when creating measurement metrics for audio ads and content and in evaluating these metrics:

5.1 Cache Busting

Advertising and content exposure instances should be counted across all ad and content request activity, regardless of whether the advertising, content or application functionality has been stored in cache. Accordingly, if cache techniques can impact counting of ads or content, cache-busting techniques should be employed. Similar to general Internet cache busting techniques, this can be accomplished by including a unique identifier in the call/string; using proper headers or using other techniques for stopping the cache function.

5.2 Filtration for Invalid Traffic Activity

It is critically important to give consideration to, and employ robust filtration techniques to eliminate invalid (non-human or human) or non-legitimate commercial activity from reported audio ad and content reported measurements. More complete descriptions of the required techniques can be found in the *MRC's Invalid Traffic Detection and Filtration Guidelines*.

Non-human activity can be encountered in executing an application, causing non-human Ad Impressions or other metrics, therefore General Invalid Traffic filtration techniques must be used with application based audio functionality. It is strongly recommended that measurement organizations also use sophisticated invalid traffic detection techniques for monetized digital audio measurements and it is required for digital audio audience measurement.

5.3 Other Non-Human Activity

5.3.1 Pre-Fetch and Pre-Render

Ads or content that are pre-fetched or pre-rendered or stored within the application or elsewhere on the Client User should not be counted as valid activity or included in reported metrics until accessed and audible by the user or on the device.

5.3.2 Auto-Play

Auto-play audio ads or content (executed automatically outside of the intentions of the user) should be segregated for reporting purposes if material (exceeding 5% of applicable reported activity for the reporting period). This auto-play activity (assuming it is audible) is valid to count because the user may have listened to them; however, the uncertainty around engagement and the lack of user initiation of the impression cause the need for this segregation.

5.3.3 Auto-Refresh

Auto-Refresh refers to the action of serving or changing advertising or content in an automatic manner (such as may be the case with companion display ads in audio players). Auto-Refresh can be set directly by a user (user initiated) or set by a site without user interaction (site initiated).

Website content owners generally directly control the use of site initiated Auto-Refresh. External parties have significantly less ability to detect, measure and report on Auto-Refresh accurately, especially when using ad centric measurement approaches. As such, content owners or media seller organizations are encouraged to disclose the use of site initiated Auto-Refresh including parameters, settings and relative volumes or otherwise make this information available for use by measurement organizations (such as by being passed as part of data transmissions).

Measurement organizations are required to collect and utilize site initiated Auto-Refresh information disclosed or passed by content owners or media seller organizations. Measurement organizations are encouraged to develop techniques to detect and estimate site initiated Auto-Refresh if not otherwise disclosed or passed.

To the extent known by measurement organizations, the presence of site initiated Auto-Refresh should be disclosed to users of measurement data including the parameters and settings surrounding Auto-Refresh. Further, site initiated Auto-Refresh should utilize reasonable rates for the associated content type (sports site, news site, stock tickers, etc.) and include segregated disclosure of the Auto-Refresh counts if they are material to total impressions by campaign. User initiated Auto-Refresh is counted as a normal advertising impression.

5.4 On-Line vs. Off-Line Activity

Ad or content consumption activity can be counted regardless of whether the exposure occurred when the user was on-line or off-line. However, the nature of these deferred ad impressions, content or other off-line activity should be described, quantified and segregated for reporting purposes.

5.5 Emerging Considerations

The following conditions are emerging in the audio measurement marketplace and therefore may contribute to changes in measurement metrics, methodology and disclosures. Measurement organizations should consider these matters; the attribute of full disclosure is critical in emerging areas.

5.5.1 Advanced Advertising (e.g., HTML5 for companion ads)

HTML5 is bringing additional functionality, measurement tracking methods and accountability to the mobile measurement space. HTML5 advertising implementations may also bring additional complexities to the measurement process, in that ads may consist of multiple files, rather than a single file, and therefore the complete ad may load in stages rather than all at once. We suggest future study be undertaken to determine the potential impact of HTML5 implementations on the counting approaches that are required under these standards. If it is determined that additional guidance is necessary in order to appropriately consider the unique attributes of HTML5 advertising implementations in the mobile application environment, this guidance will be provided in a future update to this initial version of these standards.

5.5.2 Targeting within Applications

The registration and self-identification nature of application usage lends itself to enhanced targeting functions. Development of these functions is encouraged; however, strong caution insofar as compliance with privacy regulations should be considered. Privacy regulations as they emerge should be monitored and staged for the application measurement organization as soon as known. Publicly available privacy policy documents are encouraged.

6.0 User Initiated Ad Actions or Other Measures of Engagement

6.1 Tracking Ancillary Actions

6.2 In-Application Facilitated Actions

6.2.1 Demographic Attribution based on Actions

[The Guidance in section 6.0 is to be addressed in *MRC's Engagement Metrics Guidelines*, initiated in 2017.]

7.0 General Reporting Parameters

7.1 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 digital audio 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.

7.2 Time

Day – 12:00 midnight to 12:00 midnight.

Dayparts – In recognition of the importance of mobile delivery of digital audio, mobile 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.

Standard Audio Measurement Dayparts may be used, especially for static streaming, for consistency purposes with legacy radio reporting. Dayparts can also be “customized” but, in all cases the specifics of these customizations should be fully disclosed.

Time Zone – Full disclosure of the time zone used to produce the measurement report is required. In addition, time zone equalization for reporting is preferred, although not a current compliance requirement (for accredited or certified publishers or ad servers to have the ability to produce audience reports in a consistent time-zone so buyers can assess activity across measurement organizations -- for U.S.-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

Weekparts – 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) four-week periods – (thirteen 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.

7.3 Location

If information about the geographic location of the users is collected and reported, any limitations to the methods used should be disclosed. Location measurement and disclosure should be consistent with MRC location-based advertising guidance where applicable. User/device location may represent point in time location or may be used to determine home location and such distinction

should be disclosed to users as part of methodological and definitional disclosures.

7.3.1 Traditional Geo-Location Methods

If information about the geographic location of the users is collected using traditional geo-location methods (for instance, using registration information or IP-based data from a third-party vendor to determine the location of the user), and this information is used in reporting, any limitations to the methods used should be disclosed. Ambiguities in wireless operator routing should be accounted for in location determination and estimated through processes derived from carrier/ad server cooperation.

7.3.2 Application Location Services

If information about the geographic location of the users is collected using application location services (such as GPS-enabled user location determination, or another application-based means), and this information is used in reporting, the method used and any known limitations to it should be disclosed.

If other techniques are used to determine location, these methods as well as known limitations should be disclosed.

7.4 Segregating Non-Like Ad Content

For reporting purposes, measurements for a campaign should be segregated by the various types of ads included in the campaign. For instance, counts should be reported separately for ads within the campaign of different lengths or functionalities.

8.0 Disclosure Guidance

Media companies, ad serving organizations, and third-party measurers of digital audio should fully disclose their ad impression recording processes and digital audio audience measurement methods to buyers and other users of the data. An organization's methodology for accumulating digital audio measurements should be fully described to users of the data in a Description of Methodology (DOM) document. Specifically, the nature of 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 should be included in the disclosure.

The following presents examples of the types of information disclosed.

Nature of Digital Audio Measurements

- Name of Measurement Report
- Type of Measurements Reported
 - Time Periods Included
 - Days Included
 - Basis for Measurement
 - Geographic Areas
 - Significant Sub-Groupings of Data
 - Demographic Categories
- Formats of Reported Data
- Special Promotions Impacting Measurements
- Nature of Auditing Applied and Directions to Access to Audit Report
- Sampling/Projections Used
 - Sampling Methods Used
 - Explanation of Projection Methods

Data Collection Methods Employed

- Method of Data Collection
 - Logging Method
 - Logging Frequency
 - Logging Capture Point
- Types of Data Collected
- Contacts with Users (if applicable)
- Research on Accuracy of Basic Data
 - Cookie Participation Percentages (if applicable)
 - Latency Estimates
- Rate of Response (if applicable)

Editing or Data Adjustment Procedures

- 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
 - Illustrations are desirable
- Weighting Techniques (if applicable)
- Verification or Quality Control Checks in Data Processing Operations
- Pre-Release Quality Controls
- Reprocessing or Error Correction Rules

Reporting Standards (if applicable)

- Requirements for Inclusion in Reports, Based on Minimum Activity Levels

Reliability of Results

- Sampling Error (if applicable)

Data retention rules

- Maintaining sufficient data or processes that allow for audit trail

Limitations on Data Use

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

9.0 Auditing Guidelines

9.1 General

Third-party independent auditing is encouraged for all ad-serving applications used in the buying and selling process. This auditing is recommended to include both counting methods and processing/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 of filtration procedures and measurement recalculations. Activity audits can be executed at the campaign level, verifying the activity associated with a specific ad creative being delivered for performance measurement purposes.
2. Processes/Controls: Examination of the internal controls surrounding the ad delivery, recording and measurement process. Process auditing includes examination of the adequacy of site or ad-server applied filtration 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 assure internal controls are maintained. Audit reports should clearly state the periods covered by the underlying audit testing and the period covered by the resulting certification.

9.2 U.S. Certification Recommendation

All ad-serving applications used in the buying and selling process are recommended to be certified as compliant with these standards at minimum annually. This recommendation is strongly supported by the American Association of Advertising Agencies (4A's) and other members of the buying community, for consideration of measurements as "currency".

Special Auditing Guidance for Outsourced Ad-Serving Software:

Ad serving organizations that market ad serving/delivery software to publishers for use by the publisher's IT infrastructure (i.e., "outsourced") should consider the following additional guidance:

1. The standardized ad-serving software should be certified on a one-time basis at the ad serving organization, and this certification is applied to each customer. This centralized certification is required at minimum annually.
2. Each customer's infrastructure (and any modifications that customer has made to the ad serving software, if any) should be individually audited to assure continued functioning of the software and the presence of appropriate internal controls. Processes performed in the centralized certification applicable to the outsourced software are generally not re-performed. The assessment of customer internal controls (and modifications made to outsourced software, if any) is also recommended to be at minimum an annual procedure. These certification procedures are only necessary for outsource clients who wish to present their measurements for use by buyers.

Special Auditing Guidance for Advertising Agencies or Other Buying Organizations:

If buying organizations modify or otherwise manipulate measurements from certified publishers or ad-servers after receipt, auditing of these activities should be considered.

In addition to MRC and its congressional supported certification process for the broadcast industry, there are a number of other certifiers and types and levels of certification available to ad serving organizations.

9.3 European/Additional Region/Country Certification Recommendation

The MRC and other supporters of these standards encourage non-U.S. measurers of in-application advertising activity to adopt the practices spelled out in this document. While certification regimes may vary on a country-by-country basis, we encourage measurers to be audited for compliance annually by independent, third-party auditing organizations.

10.0 References

IAB Ad Impression Measurement Guidelines

<https://www.iab.com/wp-content/uploads/2017/11/Desktop-Display-Impression-Measurement-Guidelines-US-MMTF-Final-v1.1.pdf>

IAB Audience Reach Measurement Guidelines

<http://www.iab.com/wp-content/uploads/2015/06/AudienceReachMeasurementGuidelines.pdf>

IAB Click Measurement Guidelines

<http://www.iab.com/wp-content/uploads/2015/06/click-measurement-guidelines2009.pdf>

IAB/MMA/MRC Mobile Application Advertising Measurement Guidelines

<https://www.iab.com/wp-content/uploads/2017/11/Mobile-In-App-Measurement-Guidelines-MMTF-Final-v1.1.pdf>

IAB/MMA/MRC Mobile Web Advertising Measurement Guidelines

<https://www.iab.com/wp-content/uploads/2017/11/Mobile-Web-Measurement-Guidelines-MMTF-Final-v1.1.pdf>

MRC Invalid Traffic Detection and Filtration Guidelines

[http://mediaratingcouncil.org/101515_IVT%20Addendum%20FINAL%20\(Versions%201.0\).pdf](http://mediaratingcouncil.org/101515_IVT%20Addendum%20FINAL%20(Versions%201.0).pdf)

MRC Minimum Standards for Media Rating Research

<http://www.mediaringcouncil.org/MRC%20Standards.htm>

MRC Desktop Viewable Impression Guidelines

http://mediaratingcouncil.org/081815%20Viewable%20Ad%20Impression%20Guideline_v2.0_Final.pdf

MRC Mobile Viewable Impression Guidelines

<http://mediaratingcouncil.org/062816%20Mobile%20Viewable%20Guidelines%20Final.pdf>

IAB DAAST

http://www.iab.com/wp-content/uploads/2015/12/DAAST_1.1-3.pdf

MRC Location Based Measurement Guideline

<http://mediaratingcouncil.org/MRC%20Location-Based%20Advertising%20Measurement%20Guidelines%20Final%20March%202017.pdf>

MRC Digital Audience Based Measurement Standards

<http://mediaratingcouncil.org/MRC%20Digital%20Audience-Based%20Measurement%20Standards%20Final%201.0.pdf>

IAB Digital Video Measurement Guidelines

<https://www.iab.com/wp-content/uploads/2017/11/Digital-Video-Served-Impression-Measurement-Guidelines-MMTF-Public-Comment-Draft-v2.pdf>

11.0 Supporting Associations

About the Media Rating Council (MRC)

The Media Rating Council is a non-profit industry association established in 1963 comprised of leading television, radio, print and digital media 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 Minimum Standards for Media Rating Research as well as other applicable industry measurement guidelines; 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 approximately 110 research products are audited by the MRC. Additional information about MRC can be found at www.mediaratingcouncil.org.

About the Interactive Advertising Bureau (IAB)

The Interactive Advertising Bureau (IAB) empowers the media and marketing industries to thrive in the digital economy. It is comprised of more than 650 leading media and technology companies that are responsible for selling, delivering, and optimizing digital advertising or marketing campaigns. Together, they account for 86 percent of online advertising in the United States. Working with its member companies, the IAB develops technical standards and best practices and fields critical research on interactive advertising, while also educating brands, agencies, and the wider business community on the importance of digital marketing. The organization is committed to professional development and elevating the knowledge, skills, expertise, and diversity of the workforce across the industry. Through the work of its public policy office in Washington, D.C., the IAB advocates for its members and promotes the value of the interactive advertising industry to legislators and policymakers. There are 42 IABs licensed to operate in nations around the world and one regional IAB, in Europe. Founded in 1996, the IAB is headquartered in New York City and has a West Coast office in San Francisco.

About the Radio Advertising Bureau (RAB)

The Radio Advertising Bureau serves more than 6,000 member radio stations in the U.S. and over 1,000 member networks, representative firms, broadcast vendors and international organizations. Radio Advertising Bureau leads and participates in educational, research, sales, and advocacy programs that promote and advance Radio as a primary advertising medium.

About the NAB Committee on Local Radio Audience Measurement

The NAB Committee on Local Radio Audience Measurement (COLRAM) consists of volunteer broadcasters from NAB member organizations and other industry leaders serving the research interests of radio.

12.0 Contact Us

Contact Information

For questions related to the content of this guideline, please contact:

MRC:

George Ivie, CEO/Executive Director
givie@mediaratingcouncil.org

NAB COLRAM:

Dan McDonald, Vice President, Research
dmcDonald@nab.org

Radio Advertising Bureau (RAB):

Sharon Friedlander, Vice President, Insights
sfriedlander@rab.com

Interactive Advertising Bureau (IAB):

Chris Kuist, SVP of Research and Impact
chris.kuist@iab.com