



BRC RAM TECHNICAL REPORT

BRC Radio Audience Measurement TECHNICAL REPORT

1. Introduction

The collection of data on South African radio listening behaviour of the Broadcast Research Council's, BRC RAM study commenced on 7 January 2016. The study is a bespoke stand-alone audience survey designed to meet the needs of radio broadcasters and advertisers.

The survey consists of two elements:

- The placement interview designed to collect information about households and individuals aged 15 years and older.
- The radio diary designed to collect radio station listening data, by device and location, for all South African Commercial, Public Broadcasting Service (PBS) and Community radio stations, for each quarter hour across a week.

After the initial six months of data collection, BRC RAM is released quarterly based on six-month rolling data.

2. Definition of terms

Area classification

Areas are classified into one of three area types based on a fixed set of criteria and using the municipal code and geography type as per Stats SA Census 2011, namely:

- **Metro** – Small Areas (SAs) falling within the boundaries of the eight 'Metropolitan Municipalities' as defined by the National Demarcation Board (that being Ekurhuleni, City of Johannesburg, City of Tshwane, Mangaung, Buffalo City, Nelson Mandela Bay, eThekweni and City of Cape Town) AND classified as 'Urban' according to the geo type variable in the Census 2011 data.
- **Small Urban** – Small Areas that are within the borders of one of the 'Metropolitan Municipalities' (municipal code) and defined as 'Farm' or 'Traditional' (geography type) or are within the borders of an 'Other Municipality' (municipal code) and defined as 'Urban' (geography type).
- **Rural** – Small Areas that are classified as 'Traditional' or 'Farm' in the Census 2011 data (based on the geo type variable) and are located within 'Other Municipality'.

Refer to Appendix A for detailed breakdown of municipality and Sub Place classifications per province.

Briefed respondents

All household members who were present during the briefing by the interviewer on the diary instructions.

CAPI

CAPI (Computer Assisted Personal Interview) is a face-to-face interview done using a questionnaire deployed on a tablet. An interviewer conducts the interview as per the CAPI script, and captures the answers on the tablet. Data is uploaded to a central database once the interview is complete.

Diary overseer

The diary overseer is either the main respondent, or someone nominated by the main respondent, who oversees the diary process within the household. The diary overseer is briefed by the interviewer on the diary instructions and diary completion, and is then responsible for briefing any other household members not present during the interview.

Disproportionate sampling

In disproportionate sampling, the allocated sample size per stratum does not match the proportion of that stratum in the population. This type of sampling is very common as it offers many advantages in terms of cost. This requires the results to be adjusted so that the correct profile is re-established, through weighting some strata up or down. For BRC RAM, disproportionate sampling is applied to area, with a higher (disproportionate) allocation to Urban areas.

Enumeration area

The smallest geographical unit (piece of land) into which the country is divided by Stats SA for census or survey purposes.

Flooded respondents

All other members of the household (aged 15 years and older), other than the main respondent, who agree to participate in the research.

Flooding

Flooding means the placing of BRC RAM diaries with all members of the household aged 15 years and older who will be present during the 7-day diary period.

Geography type

The geography type is based on the official Statistics South Africa classification which uses input from the Surveyor General. The three geography types are Urban, Farm and Traditional.

Household

A group of people who live together and share meals at least four times a week. If a house has a backroom, granny flat, cottage, shack or other separate dwelling, the first step is to determine if the person (or persons) living in that dwelling forms (or form) a separate household, or if they are part of the household living in the main dwelling according to the following:

- To be counted as a member of a household, a person must eat and sleep in that household at least four days a week. If a person sleeps in a separate dwelling on the same property, but shares meals with the household in the main dwelling on at least four days of the week, they form part of the same household.
- However, if the person (or persons) in the backyard dwelling eats (or eat) separately, they form a household on their own and must be counted as such.
- The interviewer will then treat the separate household as a house on the street and count them separately when determining visiting points based on the sampling interval.

Household income

The total claimed household income before tax and other deductions. All sources of income i.e. wages, salaries, pensions, social grants, income from investment, etc. from all members of the household must be taken into account.

Household roster

The interviewer lists all the household members, from oldest to youngest, in the household roster upon recruiting the household. Mentally unfit household members, and those who are away during the interviewing period, are listed separately as non-qualifying members.

IHS

IHS are expert demographers, providing comprehensive global market, industry and technical expertise. For BRC RAM, IHS provides up-to-date population estimates and includes the latest boundary information, ensuring ongoing representation.

Kish grid

A method developed by statistician Leslie Kish in 1949, used to randomly select the member of a household to be interviewed by way of a pre-assigned table of random numbers.

Main respondent

The person in the household (aged 15 years or older) randomly selected using the household roster and Kish grid. The main respondent completes the placement interview on behalf of the household.



Municipal code

Identifies the official municipality of the Small Area. Municipalities and their boundaries are officially recognised areas as defined by the Municipal Demarcation Board. Eight municipalities have been classified as 'Metropolitan Municipalities', namely Ekurhuleni, City of Johannesburg, City of Tshwane, Mangaung, Buffalo City, Nelson Mandela Bay, eThekweni and City of Cape Town.

Non-briefed respondents

Household members who were not present during the personal briefing by the interviewer on the diary instructions, but rather were briefed by the diary overseer.

Placement interview

The face-to-face interview conducted with the main respondent before placing the radio diaries. The placement interview establishes the household's composition, demographics and general radio listening behaviour.

PPS

Probability Proportionate to Size (PPS) sampling is an approach in which the selection probability for each element is set to be proportional to its size. For BRC RAM, SAs are listed along with their associated populations (age 15+). These numbers are cumulated – effectively numbering the population. Random numbers are used to select these notionally numbered people. This results in a list of SAs in which these people live, the probability of a SA being selected then being proportional to its population size.

Primary income earner

The person in the household who contributes the most to the household income.

Province

The nine provincial boundaries in the BRC RAM sample align with those of Statistics South Africa.

Radio diary

The seven-day paper diary used by respondents to record their radio listening.

Radio listening

On the diary, respondents are instructed to record any listening to any station, if they listened for 5 minutes or more.

Radio stations

All stations broadcasting on an AM or FM frequency, as published by The Independent Communications Authority of South Africa (ICASA). This excludes radio stations that broadcast exclusively through streaming.

Respondent

Respondent means collectively, the main and flooded respondents.

Sampling frame

The TNS master sampling frame lists all Small Areas (SAs) together with a number of variables at SA level, such as population size (used for SA selection based on PPS sampling), province, main place name and code, sub-place name and code, dominant race group and TNS Field Manager allocation.

Sampling Interval

The sampling interval is the number of houses to be counted between each visiting point. The interval is calculated within each SA, using the number of households per SA as a crude measure of size.

Small Areas (SA)

The Small Area (SA) code is based on the 2011 Census and is the officially-recognised classification of areas with fixed boundaries. The SAs are a very low level geographical classification of areas and in 90% of cases, the SA is the same as the Enumeration Area (EA), while the balance of SAs are made up of two or more EAs.

Starting Points (SP)

The starting point is a random point, marked as an 'X' on the map supplied to the interviewer. The random starting point is generated through Geographic Information System (GIS) technology, using a random number generator to allocate a random value for the x- and y- coordinates (longitude & latitude) for a point located in the SA map.

Substitution

Substitution means the purposeful replacement of an originally selected household, in accordance with agreed rules.

Time spent listening

The number of hours people listen to the radio, either across a day, or across a week.

Total population

Total population refers to the total number of people living in the Small Area.

Total population \geq 15 years of age refers to the total number of people aged 15 and older living in the Small Area. In other words, this is the total number of people who could be interviewed.

Total population $<$ 15 years of age refers to the total number of people below the age of 15 living in the Small Area. In other words, this is the total number of people who are not eligible for interviewing but who still reside in the Small Area.



3. The BRC RAM sample

The annual sample size is 30 000 households.

Interviewing is spread over 50 weeks of the year, and evenly across the country and across the days of the week. This ensures that all periods, area types and provinces are consistently covered resulting in stable data.

Household flooding is used by placing diaries with each member of the household aged 15 years and older, resulting in the radio currency being based on approximately 65 000 individual diaries a year.

A cluster size of four (4) household interviews is done per Small Area; therefore, 7 500 Small Areas per annum will be drawn in order to achieve the annual sample of 30 000 households.

The sampling approach

The sample is drawn through strata created using province and area type as explicit variables.

The dataset used to develop the BRC RAM master sampling frame is delivered by IHS on an annual basis.

TNS conducts quality assurance checks on the IHS dataset. Checks will be done on the IHS dataset focusing on:

- Google Earth enabled verification of low population SAs
- Duplicates
- Range of data (e.g. no negative values for population figures)
- Current dataset vs previous IHS dataset (e.g. consistency in geography type and municipality)

The quality-assured IHS dataset forms the basis of the TNS master sampling frame which lists a number of variables at SA level, such as population size, province, main place name and code, sub-place name and code, dominant race group and TNS Field Manager allocation.

SAs identified as Industrial, Institutional, Parks and Recreation are excluded from the master sampling frame used for PPS sampling.

Area selection

Using the master sampling frame, a stratified multistage sample design is used to draw a sample of 7 500 households per quarter, from 1 875 Small Areas (SAs).

Area splits follow actual population distribution as provided annually by IHS. Given that the sample is drawn based on disproportionate sampling, the sample

is re-proportioned to 60% Metro and 20% respectively for Small Urban and Rural.

A sampling frame of SAs at sub-sample level (per area type per province) has been developed.

A Probability Proportional to Size (PPS) approach is applied to ensure the correct and random selection of starting points per area type per province. The PPS is generally accepted to be the most appropriate approach to sampling for programmes such as BRC RAM.

Starting points (or SAs) are then randomly selected from the sampling frame according to the area type and province, and used by the TNS Field team to select households to interview.

Household selection

Once the SAs for interviewing have been selected, the households to interview in that area must be identified.

Using the sampling interval, and referring to the random starting point, visiting points and substitute points are identified before continuing on to identify the main person to be interviewed in each household. One substitute point is allowed for each visiting point, that is, if four interviews are to be completed per SA, a total of eight visiting points is identified per SA (four original points and four substitute points).

To identify the visiting points, interviewers will be required to walk in a clockwise direction (in a spiral formation) and count the number of houses on both sides of the road until the sampling interval number is reached.

Once the visiting points and possible substitute visiting points have been established, the interviewer will go to the first visiting point (starting point) and begin interviewing.

Respondent selection

To identify the main respondent in the home to be interviewed for the placement survey, a Kish grid is used. This approach requires the interviewer to record all the individuals at that household who are 15 years or older and who reside and eat there four or more nights of the week.

By using the Kish grid, the interviewer will select main respondents at random and regardless of gender, resulting in a broad range of responses to the questions included in the placement survey. In other words, not just heads of household or 'gatekeepers' will be chosen for the placement interview. However, since the main respondent might be the youngest member of the household (for example), he/she will have the option to nominate another member of the household (such as the head of the household) to take

responsibility for the diary completion process and to ensure that all members complete their diaries accurately (the diary overseer).

Following the outlined process produces a randomly selected area, randomly selected households within that area, and randomly selected persons to interview for the placement survey within the selected household.

Substitution

There are two types of substitution which may be applied: area substitution and visiting point or household substitution. Strict controls are in place to manage substitutions and there is a strong focus on keeping substitutions to a minimum.

a) Area substitution

In terms of area substitution, an SA may be substituted for another similar SA in the same area only if that area is inaccessible for a specific reason. Reasons may include that there are no homes in that area or it is unsafe due to excessive crime. In these instances, the entire SA would need to be replaced with a similar SA in the same area. Where possible, we use our in-house Geographic Information System (GIS) and Google Earth specifically to check the validity of claims.

It may also happen that the interviewer in an SA selects visiting points and substitute visiting points but cannot complete any interviews in that area for valid reasons. For this scenario, the SA would need to be substituted in its entirety. In some instances, the interviewer may only be able to complete some of the required number of interviews for any given area, in which case, the area may be 'closed' with fewer completed interviews. A substitute SA will then be selected for the completion of the outstanding balance.

b) Household substitution

An interviewer may use a substitute visiting point within the SA only if they have been back to the originally selected home on four separate occasions at different times of the day and on different days of the week (for Metro and Small Urban only) and have been unable to complete an interview with the randomly chosen respondent for a valid reason, such as refusal or in the case of the visiting point being a child-headed household.

Up to a total of eight visiting points are allowed per SA (four original points and four substitutes).

No substitution of individuals within a household is allowed in determining the main member. If the selected individual is not present at the time of the original placement interview, the interviewer will make an appointment to return to conduct the interview and place the diaries.

4. Survey technique

Methodology

A seven-day self-completion diary is placed with all qualifying respondents and collected after the seven-day period.

Securing the respondent

The primary purpose of the first interview is to secure the respondent's commitment to completing the diary as per specifications and to ensure they fully understand what is required of them.

The interviewers are assigned areas they are familiar with and will therefore be able to properly engage with respondents in their preferred language and relate to them well.

All participating respondents who complete their diaries will be entered into a monthly draw for 2 x R5 000.

Placement interview equipment and software

The initial placement interview is conducted via CAPI on a tablet.

Placement day (and diary start day)

The placement days (and therefore diary start days) are spread across the week in accordance with best practice. This avoids any biases in diary completion. An even spread of placements across the week is controlled on a quarterly basis, nationally and provincially.

Diary placement, preparation and instructions

Using diary instructions, the interviewer ensures that the respondent and all household members present are properly briefed on how to complete the diary, accompanied with easy-to-understand and fully translated diary instructions. They will also set a date and time to collect the diaries.

Diary instructions are translated into all 11 official languages.

Each household has a fixed start day. The interviewer captures the start day and date on the first page of the diary as well as on each page of the seven-day period.

Respondents are instructed to record all listening occasions when they listened for at least five minutes and they are clearly briefed to include casual and out-of-home listening.

Follow up and reminders

To ensure that completion rates are high, two methods of follow up are used:

- All respondents in the household with whom a diary was placed receives a text message within 24 hours of placement, thanking them for participating in the study and reminding them of the importance of completing the diary accurately and in full. Due to the high cell-phone penetration rates in South Africa, this is a good means of contact. Household members also receive an SMS on day 4 and 7 after placement.
- The TNS Call Centre also telephonically contacts the main respondent to answer any questions they have and to check on diary completion within 48 hours of placement.

Diary collection

The interviewer returns to the household at the end of the seven-day period in order to collect the completed diaries.

The BRC RAM diary format

Each diary page includes:

- Quarter-hour time bands
- Eight columns for radio stations to be listed
- Space for location per time band
- Space for device per time band
- 'I did not listen to the radio' block

Radio stations that were mentioned in the placement interview are listed on two flaps at the top of the diary.

At the back of the diary respondents are asked to record their one favourite radio station.

Radio stickers

Individual stickers are provided to the household for all Commercial, PBS stations and Community radio stations in their province and adjacent provinces.

During the placement interview, the interviewer will record the 'stations listened to' for each household member, and place stickers for each of these in the order they were named, in the station spaces on the top flaps of each diary page. The remaining stickers are left with the household, should a respondent wish to add stations to his/her own diary with applicable radio station stickers. Blank stickers are also provided if the respondent can't find a specific station, to accommodate stations that start broadcasting during the fieldwork period, or streaming.

The radio stickers are based on the radio station master list, updated on a quarterly basis, using multiple sources, and signed off by the BRC Radio Research Committee (RRC).

Stations not included in the master list, which starts airing during a quarter, are added for the following fieldwork period through the standard updates and checks. In the meantime, if such a station is mentioned by a listener during the quarter, the radio station name will be recorded and captured, with any listening reported in 'Other'.

If a radio station was included in the master list for the quarter, it will be reflected in the BRC RAM survey, if it achieved a listener base of 40 or more. All stations with a listener base of less than 40 are coded in "Non-qualifying radio stations"

5. Data collection and quality control

The diary questionnaires are marked-in and checked as they are received from the individual field teams. The diaries are then coded and captured into a data-entry software package.

A data entry verification process is used to verify the accuracy of each capturers' work. 20% of the diaries are re-captured and 10% of each capturer's set of questionnaires are re-captured.

Once all the questionnaires have been verified and fully captured, the data validation team conducts further analysis.

Post interview quality control

Interviews are further back-checked independently of the field teams. Back-checks are done telephonically or face-to-face. A minimum of 20% of all questionnaires (interviews) are back-checked and a minimum of 10% per interviewer.

Editing Rules

Each diary is checked against a rigorous set of editing rules. Only diaries that have been properly completed are included in the final data set.

6. Sample weighting

After data collection and capturing, the data will be appropriately weighted, to align the sample with the target population as closely as possible, and to compensate for non-response and disproportions resulting from the sample design.

The BRC RAM data is weighted to match the data released by IHS. Twenty-three weights are applied, one for each province and area type, for the following:

- Race
- Gender
- Age

A Random Iterative Method (RIM) weighting is applied. RIM weighting uses a mathematical algorithm to help provide an even distribution of results across the province and small area, while balancing the required weighting variables with predetermined totals.

It weights the specified variables simultaneously and disturbs each variable as little as possible. This in turn protects the integrity of the data and supports the precision of research estimates.

A weighting efficiency report is produced on a quarterly basis.

Different weighting schemas are computed for individual-level data and will form part of the dataset as separate weight factor variables.

7. Reporting

A quarterly presentation is produced based on data from the six-months preceding the report, as follows:

In a specific year, the quarters refer to the following:

- Q1 January – March
- Q2 April – June
- Q3 July – September
- Q4 October – December

The presentation outlines the quarterly sample, general listening trends and station-level results.

In addition, dashboards are produced on a quarterly basis for each Commercial or PBS station with a base size of 40 or more, and the 25 Community stations with the highest respondent base. The dashboards show the listening figures, average time spent listening, station-listener profiles (demographics, device and location listening) and quarter-hour curves.

The data is released to the industry through Third Party Software Providers, approved by the BRC.



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