

Birch Radio



**How Birch Measures Radio:
The Complete Birch Radio
Sourcebook**

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1. About Birch Radio and This Sourcebook

Birch Radio is America's leading supplier of telephone-based radio audience ratings in over 250 markets nationwide. Birch measures over 150 markets on a continuous, year-round basis.

Founded in 1978, Birch Radio, a division of Birch/Scarborough Research Corp., is wholly-owned by VNU Business Information Services (United Dutch Publishing). Birch/Scarborough and the VNU Operations Center in Coral Springs today employ more than 900 people in 13 offices nationwide. Birch/Scarborough Research corporate headquarters and production facilities are in Coral Springs, FL. Birch Radio Sales and Marketing headquarters are in Englewood Cliffs, NJ (a suburb of New York City). Regional sales offices are in Atlanta, Chicago, Dallas and Los Angeles. Printing facilities are in Norfolk, VA.

All nationwide interviewing is conducted from 7 centralized WATS interviewing centers in Coral Springs and Sarasota (2 offices), FL; San Antonio, TX; Louisville, KY; Allentown, PA; and Tulsa, OK. Working under close supervision, Birch Radio interviewers complete more than one million interviews each year.

This Sourcebook has been designed to provide users of Birch Radio reports with information on all facets of Birch Radio report development, from sampling to report production and mailing. In addition to methodological and procedural descriptions, the Sourcebook provides informational sections on Birch Radio staff and office locations, terms used in Birch Radio reports and background information on various methods tests recently conducted by Birch Radio to improve its basic methodology and execution.

2. Sampling and Selection of Respondents

The Birch Measurement Universe

Birch Radio provides estimates of the average week radio listening behavior of people aged 12 and older living in listed and non-listed telephone households. Individuals living in group quarters are, by design, not included in Birch samples.

Birch Radio Sampling Procedures

The following pages describe the multi-stage sample and respondent selection procedures used by Birch. These procedures are utilized to insure that all Birch samples are:

- **Random.** Birch samples are probability samples wherein every member of the sampled universe has a quantifiable opportunity for selection;
- **Time sensitive.** The Birch sampling plan reflects a sensitivity to shifts in population settlement patterns;
- **Representative.** Proportionate representation of listenership by geographic (i.e. county within Metro) and timing considerations (i.e. days within month).

Birch uses a well-accepted and validated method for selection of households for sampling, and conducts interviewing with only one randomly chosen member of each household.

Single person per household sampling is advantageous relative to sampling of multiple persons within households because:

- Statistical sampling reliability is improved;
- Household listening bias (the tendency for all members of a household to report similar listening patterns) is eliminated;
- Household reporting bias (the potential for individuals other than the designated respondent to report listening for the designated respondent) is eliminated;
- Geographical sampling representation is improved.

The Total Telephone Frame Sample

Birch utilizes the A. C. Nielsen Total Telephone Frame (TTF), which is audited and accredited by the Electronic Media Ratings Council, as its Master Sample Frame.

The TTF sample provides proportionate inclusion of both listed and non-listed telephone households and is updated three times annually by the Nielsen Company.

Initial Sample Frame Preparation

The National Data Center (NDC) in Lincoln, Nebraska, compiles computer files containing all known listed telephone households. The NDC file is continually updated as new directories are published, and updated NDC file data is provided to Donnelley Marketing (division of Dun and Bradstreet Corporation) for assignment of state and county designations of each listing.

Three times per year, Donnelley Marketing provides Nielsen with counts of listings by telephone exchange and zip code. Nielsen compares the Donnelley Marketing file information

with files of all U.S. operational telephone exchanges obtained from Bell Communications Research (BCR).

Exchanges found only in the Donnelley Marketing file are either considered to be in error or no longer working.

Exchanges exclusive to the BCR file are considered to be either non-residential (business, government, etc.) or too new for assignment of residential listings. All of these exchanges are also deleted from the frame.

Exchanges common to both Donnelley Marketing and BCR are included in the TTF and assigned to the county containing the largest number of listings for each exchange. Within each exchange, blocks of 100 consecutive telephone numbers are formed and identified by the first two digits of the telephone number suffix, e.g., 202-555-12NN (area code - exchange - block).

Each block of 100 numbers is known as a Primary Sampling Unit, and is assigned to a sampling strata based on the county assigned to the exchange. The blocks are stratified geographically to provide a proportionate distribution of telephone numbers within the sampling strata.

Birch Adaptation of TTF Master Sample Frame

Birch Radio prepares operational market samples twice per year following the Winter and Summer updates of TTF by Nielsen.

The following procedures are utilized in developing an Operational Master Frame (drawn from the market TTF Master Sample Frame) and resultant individual Daily Sample Replicates (DSRs) for use by Birch interviewers:

1. The sample order size is selected by multiplying the monthly in-tab objective by seven.
2. Each month, individual Daily Sample Replicates (DSRs) are drawn from the Operational Master Sample for use by Birch interviewers.

Up to three attempts are made to reach each DSR listing. Attempts are made on successive evenings. No substitutions are made for DSR listings not contacted after three attempts.

Sample Sizes

There are several different sampling objectives generally employed by Birch in continuously measured markets.

Size of sample chosen is based on a variety of factors, including number of radio stations penetrating the market, ethnicity (some Hispanic markets require supplementation for example), geographic and marketing considerations.

Buffer Samples

If a market in-tab sample is under the monthly in-tab objective, a buffer sample is added. Buffer samples are additional Daily Sample Replicates sized to approximate the in-tab shortfall.

In-tabs are continuously monitored and buffers are generally introduced prior to the final week of surveying.

Buffer samples may also be introduced in Hispanic markets (markets where the Metro Hispanic population is 10% or greater, or the Hispanic population is 60,000 or greater) when the Hispanic in-tab is deficient by 25% or more relative to the Hispanic in-tab objective.

High Density Hispanic Areas (HDHA) are identified in each Hispanic market, and exchanges with 60% or more penetration within each HDHA are designated as HDHA exchanges.

Hispanic buffer samples are drawn using HDHA exchanges and are executed by bilingual Birch interviewers utilizing standard sampling procedures.

Selection of Respondents

Birch selects one and only one randomly chosen individual within each household, using a random selection technique known as the "Last Birthday" technique (described and validated by O'Rourke and Blair in the *Journal of Marketing Research*, Volume XX, November 1983).

Once household contact has been established, the Birch interviewer asks to speak with the person who had the most recent birthday. This individual becomes the Designated Respondent (DR); if the Designated Respondent is unavailable, the interviewer is required to schedule an appointment at a time convenient to the respondent within the current survey month.

A household is classified (for purposes of Response Rate calculations) as a "refusal" under the following circumstances:

- The DR refuses;
- The individual first answering the phone refuses to allow contact with the DR;

No substitutions are allowed for Designated Respondents.

Market Definitions

Birch Radio survey areas generally correspond to government metropolitan area definitions annually redefined by the Office of Federal Statistical Policy and Standards for the Office of Management and Budget (OMB). Some Birch Radio survey areas may differ from OMB definitions, reflecting industry usage, market preference or radio coverage considerations.

In 1988, 21 of the 109 continuously measured markets and 72 of the 152 non-continuous markets measured utilized non-OMB definitions or Birch Defined Metro areas.

Birch Radio clearly denotes the OMB definition of each market in the official market name of the report. All non-OMB market definitions are labeled as Birch Defined Markets (BDM).

The following OMB definitions are frequently used by Birch:

MSA - Metropolitan Statistical Area. Prior to June 1983, the MSAs were known as Standard Metropolitan Statistical Areas (SMSAs). A market is classified as an MSA if it's city population is 50,000 or greater or if there is an urbanized area of at least 50,000 within a total metropolitan area of at least 100,000.

MSAs are defined on a county basis except in New England, where high population densities dictate more precise definitions through utilization of city, town and county units.

PMSA - Primary Metropolitan Statistical Area. PMSAs are component metropolitan areas (MSAs) within larger Consolidated Metropolitan Statistical Areas.

CMSA - Consolidated Metropolitan Statistical Area. CMSAs were known as Standard Consolidated Statistical Areas (SCSAs) prior to June 1983. CMSAs are markets of at least one million population which contain two or more PMSAs.

Two other market definitions may be utilized by Birch Radio:

TSA - Total Survey Area. TSA reports include configurations of counties outside Metro areas which are served by Metro radio signals. Birch TSA studies are done on a custom basis and generally correspond to historical TSA definitions.

DMA - Designated Market Area. DMAs were created and defined by the A.C. Nielsen Company for use with its Nielsen Station Index local market television ratings service. DMAs are based on Nielsen analysis of television station viewing patterns and are generally larger than OMB Metro area definitions. Every continental U.S. county is assigned exclusively to one DMA.

Sample Design Limitations

Users of Birch Radio estimates should be aware that the potential exists for the following sampling and non-sampling errors to be present in Birch samples:

1. Non-telephone households are excluded from survey participation;
2. Households with members affiliated with broadcasting stations or advertising agencies are excluded;
3. Not all persons designated for sampling can be contacted, or if contacted may not provide usable results.
4. Households with more than one telephone have a higher probability for selection than single telephone households;
5. The listening of persons living in group quarters and institutions are excluded;
6. Individuals with speech and/or hearing impairments, and individuals incapable of conversing in English or Spanish are excluded;
7. Reporting errors resulting from memory failure, misunderstanding of instructions, or other errors in the reporting, editing, coding and key-entering of data may be present;
8. Although a standard questionnaire is used by all interviewers and consistent application is closely monitored by Birch Radio supervisors, the possibility exists for variations in the administration of the interview;
9. Population estimates provided by Market Statistics, Inc. (MSI), are subject to the limitations as stated by MSI and its source, the United States Census Bureau;
10. Station facilities information provided by stations or other sources may not be correct.

3. Data Collection Procedures

Birch Radio conducts its telephone interviewing under close supervision from six monitored WATS interviewing centers located at Sarasota and Coral Springs, FL; San Antonio, TX; Louisville, KY; Allentown, PA; and Tulsa, OK.

Training

All Birch Radio interviewers are required to complete a 10-hour training session which includes at least two hours of off-line interviewing ("live" interviews conducted under normal interviewing conditions but not used in tabulated samples).

All trainees are heavily monitored during the first week of work. Extra attention is paid to new interviewers, to ensure their total comprehension of interviewing procedures. Monitors critique at least one interview per interviewer each shift.

Birch employs trainers at all of its interviewing centers, and nightly training and remedial training sessions are held on a continuous basis. Sessions typically include audio-visual aids and role-playing.

Interviewers are periodically rebriefed, and special training sessions occur whenever procedures are modified.

Interviewers are instructed to read all questions and probes verbatim, and supervisors and monitors continually critique interviewers on compliance to the verbatim requirement.

Interviewers are instructed not to make any editing or crediting decisions at the time of the interview. Training sessions demonstrate procedures for handling common problems such as respondent misunderstanding of questions or ambiguous responses.

Interviewers do not have rosters of stations in each market and must follow special procedures for identification of listening. These procedures specifically preclude leading questions which may bias the interview.

Interviewing Assignments

Each market is assigned to an interviewing station from which nightly interviewing is conducted. The number of nightly interviews and interviewers assigned to a market is dependent on the in-tab objective.

Monitoring and Supervision

Birch Radio maintains the following levels of supervision in each of its interviewing centers:

Floor Supervisors are responsible for managing the work flow, providing materials and assistance to interviewers. They are also responsible for monitoring compliance with interviewing procedures.

Quality Control Supervisors are responsible for correct sample implementation, checking data for missing or incorrect information, and maintaining interview counts for markets.

Monitors. A separate staff of Monitors is employed to utilize specially designed telephones to randomly tap into on-going interviews. The monitoring staff in each center is maintained at a ratio of 1 monitor per 15 interviewers.

Monitoring assures compliance with Birch standards and verification that information has been properly gathered and noted by the interviewers. Monitoring is also used to critique style and quality of interviewing.

Additional full time management personnel are employed to facilitate scheduling, coordination of sample performance statistics and general facility management.

Birch Data Acquisition and Research Department managers are closely involved with each interviewing center and receive nightly and weekly status reports designed to identify problems quickly.

Additional Quality Control Safeguards

Three additional areas of quality control exist following completion of interviewing:

Editing. Editors based in the Birch Coral Springs Production Center have an average of two and a half years editing experience. In addition to preparation of interview data for computer entry, editors must also submit transmittals on procedural variances to Data Acquisition management.

Computerized Data Checking. Detailed summaries of each interviewer's work for the month, including demographic, geographic and ethnic in-tab distributions, and Average Quarter Hour and Cume ratings are compared to normative data for the given market.

Interviewing work which falls substantially outside of market norms is identified for review of editing and interviewing. On occasion, re-validation callbacks are made to respondents.

Internal Audits. In addition to standardized departmental quality control procedures, Birch Radio's Research Department conducts quarterly audits of each facility to assure that research designs and procedures are being properly implemented. These audits involve visits to each facility and spot monitoring of interviewing, monitoring and supervisory procedures.

Final Pre-Mailing Report Checks. The Birch Radio Product Department Quality Assurance Group (QAG) performs exhaustive checks of each page of reports prior to full-scale production. In addition to checks of sample sizes, ethnic, demographic and geographic sample distributions, the QAG reviews the plausibility of listening levels and individual station trends. Questionable reports are remanded to Editing and Data Acquisition for further review.

Disposition and Classification of Interviews

Birch Radio computes a variety of sampling statistics for purposes of internal quality and production controls and for external evaluative purposes by Birch report users. The basis for the calculations is a log maintained by interviewers of all calls made each evening.

Calling is executed and classified as follows:

No Answers. If a no-answer is encountered, the pre-designated household number is scheduled for a call-back the following evening. A total of three attempts will be made to contact a household.

Busy. Busy numbers are called back within 15 minutes. Busy numbers not contacted during the same evening as the first attempt will be recalled the following evening.

Non-working/Disconnects. Listings which result in a "non-working" or disconnect recording are noted accordingly.

Non-residence. Non-residences are places of business, institutions or group quarters. Birch Radio does not include interviews from non-residential telephone listings in its in-tab samples.

Language Barrier. Language barrier households are those in which an English-language interviewer encounters a non-English language respondent, or an English-language respondent with whom communication is impossible due to respondent speech or hearing impairments.

Language barriers involving Hispanic respondents are normally resolved by callback within 24 hours by a Birch Hispanic interviewer.

Refusal. An attempted interview is classed as a refusal as noted in Section III, Selection of Respondents.

No substitutions are allowed for Designated Respondents.

Birch Radio has developed special techniques designed to overcome respondent objections and minimize refusals. In addition, specially-trained interviewers are used in selected markets (typically where respondent cooperation is lowest) to recontact refusals for possible conversion.

Non-qualification. Households that identify themselves as being located outside of the survey area and households affirming members with media affiliations are excluded from Birch samples.

Completed Interview. Respondents who have completed the radio listening portion of the questionnaire are counted as completed interviews.

4. The Birch Personal Telephone Interview

Why We Communicate By Phone

Birch Radio believes that the yesterday recall telephone interview provides the most optimal means for collecting radio audience listening information.

Use of the telephone insures representative inclusion of all elements of the population - not just the minority of respondents capable of/willing to complete a 7-day diary.

Use of the telephone also provides many other benefits such as improved speed, process control, capability of interaction with respondents, and versatility.

For these and other reasons, personal telephone interviewing is the most widely used and accepted data gathering technique in market and media research.

Scarborough, Simmons and MRI utilize the telephone for newspaper and magazine surveys. Statistical Research, Inc. utilizes the telephone for its RADAR network radio ratings reports. The Radio Advertising Bureau relies almost exclusively on the telephone for its specially-commissioned studies on radio. Nielsen and Arbitron Television frequently utilize the telephone for coincidental studies of television audiences to special-event programming.

Birch Radio is the only local-market radio ratings company which utilizes telephone interviews for all of its data collection.

Unique Advantages of the Birch Radio Telephone Interview

The Birch interview is designed to allow ease of administration by interviewers and understanding by respondents.

Through uniform execution, the interview process assures that:

- Respondent reporting requirements are minimal, thus assuring the highest possible levels of cooperation
- Basic literacy and reading/writing orientation requirements are minimized, improving sample representation of all members of the population
- All respondents are reporting the same basic information; i.e., all respondents are utilizing the same amount of recall
- All respondents have the same understanding of the process and have been given the same instructions
- All respondents report their own listening
- Most reporting ambiguities (i.e. call letter or slogan confusion) and respondent questions can be cleared up at the time of the interview

The Birch Radio personal telephone interview consistently yields the highest response rates in local market syndicated media audience measurement.

During Fall 1988, with a nationwide average of 61.9%, Birch Radio Response Rates were approximately 21 points higher than comparable diary service Response Rates.

What We Ask Respondents To Report

Birch interviewers initially inform all households contacted the nature of the survey and note that their homes "have been chosen at random." Interviewers then request participation by the predesignated respondent.

Interviews with the predesignated respondent elicit the following basic information:

Yesterday listening by daypart. Respondents are asked to recall the stations heard within each daypart, beginning with mornings 5:00AM to 10:00AM.

Special daypart probes are furnished to interviewers in order to assist respondents in associating radio listening with "lifestyle anchor points" such as waking up to a clock radio, driving to work or school, running errands, etc. Radio listening is often done as an accompaniment to other activities. While efforts are not made to encourage reporting of listening, use of probes can improve the capability of remembering listening which may have occurred but might otherwise have gone unreported.

Yesterday dayparts probed are Morning from 5:00AM to 10:00AM, Midday from 10:00AM to 3:00PM, Afternoon from 3:00PM to 7:00PM and Last Night 7:00PM to Midnight.

For each station mentioned, respondents report the exact start and stop times of each listen and location - home, car or other away from home location.

Special probes are required to encourage accurate identification of stations heard. If a respondent fails to properly identify a station by its assigned call letters, interviewers utilize a variety of prioritized probes (i.e. slogan, location on the dial, type of programming heard) in order to record at least three (3) additional references by which editors can more accurately assign proper credit.

All station references are followed with the question "Is that on AM or FM?" and interviewers are instructed to repeat reported call letters phonetically (i.e. "Was that W-A-B-C, A as in Able, B as in Baker, C as in Charlie?").

Listening on the day before yesterday. For each station mentioned, interviewers also ask, "Do you specifically recall hearing [station] during [Daypart] on the day before yesterday, that is [name of day before yesterday]?"

Day before yesterday listening information is required as part of the tabulation of weekly cumes (see Section 6, "Weighting and Processing").

Classification data. Each respondent is classified by age, sex, race, zip code, county of residence and telephone number.

Extended demographic, media and product usage data. All interviews with respondents in continuously measured markets and several non-continuous markets include additional questions which classify respondents according to household income, education, occupation, usage levels of other local media (newspaper and television), and consumption and/or purchase intentions of a variety of consumer goods and services.

5. Editing Procedures

Birch Radio conducts a comprehensive edit of all collected data prior to computer key-entry.

Editors, all located in the Coral Springs Production Center, have an average of two and a half years experience and are carefully trained and closely supervised.

The editing process accomplishes the following basic objectives:

1. Data is prepared for key-entry, as keypunchers are not allowed to make any alterations to data. Missing and/or conflicting information is resolved, and procedural recording errors are corrected;
2. Compliance with Birch interviewing procedures are determined and critiques of interviewers are provided to data acquisition supervisors;
3. Determination is made for potential additions and deletions of stations from market rosters.

The Birch Radio Editing Manual

Birch Radio editing procedures are fully documented in the Birch Radio Data Editing Procedures Manual. This document provides guidelines for dealing with virtually all situations that may be encountered by editors.

Working with eighteen (18) different rosters, forms and files (e.g. facilities forms, station edit rosters, flip files), editors follow five basic guidelines in making edits:

1. A red pen is used at all times to clearly delineate changes made by an editor;
2. Changes in data are made by drawing a single line through data to be changed, and changed information is noted immediately above original entries;
3. Erasures, white-outs or any obliterations of original entries are prohibited;
4. Procedures are uniformly administered, and "judgment calls" are not allowed without supervisory intervention;
5. Editors must initial each edited page.

Special Validations

Interviews are set aside for further research whenever indicated call letters or other known station identifiers are not found in Editor reference materials. Whenever a call letter conflict cannot be resolved utilizing available editing materials, a Special Validation Callback is made to the respondent.

Special Validations are tracked by the Editing department and utilized for future crediting decisions.

Following Special Validation Callbacks of call letter or slogan conflicts, credits are made on the basis of a two-thirds (2/3) or greater consensus of reinterviewed respondents. Where no consensus or supervisory opinion is possible, the listening is classified as unidentified.

Call Letter Crediting

Special Validations do not resolve all conflicts; crediting in such situations are made on the basis of edit rules. The Birch Editing Procedures Manual details a number of rules governing call letter conflicts. Some examples:

1. Where call letters and other identifying information are in conflict, call letters generally take priority in determining credit;
2. When two of three station identifiers are in conflict, consensus of information determines credit (i.e. two of three identifiers which agree);
3. When all three station identifiers are in conflict, exact call letters or dial position take priority for crediting. If both call letters and dial position are in conflict, crediting is split between two stations.

Call Letter Changes

With recent modifications to Federal Communications Commission rules governing call letters, the potential exists for respondent confusion in markets where call letters have changed. Birch Radio has developed special interviewing procedures to deal with problematic or potentially confusing call letter situations.

In addition, the Editing Procedures Manual outlines these procedures:

1. Birch Radio credits listening to previous call letters up to one year after call letters have changed, where original call letters have not be reassigned to stations in the same market.
2. Where call letters have been reassigned to another station within the same market, the Data Acquisition department immediately institutes a special probe to verify proper crediting of listening.

The Editing Department maintains a list of "Hot Flips" (call letter aliases) for all markets where call letters have been reassigned within the same market. Interviewers are required to note slogan, frequency and type of programming for each "Hot Flip" station mentioned by respondents, and Editors utilize this information for crediting.

Editing of Reported Time Spent Listening

The Editing Procedures Manual directs Editors to focus on the following broad areas related to reported listening:

1. Detection of systematic interviewing errors;
2. Correction of recording mistakes, procedural errors and clarification of ambiguous entries;

3. **Resolution of time crediting problems, such as multiple station notations on a listening span.**

The following is a sampling of the more common error situations and recommended corrective interviewing actions by Birch Radio Editors:

Ambiguous time reference. When a start or stop time is missing (e.g. "5:00PM - on ..."), the Editor credits one quarter hour within the daypart (e.g. 5:00PM - 5:05PM).

Two or more stations noted for same time span. Credit is split equally across all reported stations. If the reported time span crosses a daypart boundary, credits are proportionately split within each daypart.

Less than five (5) minutes of listening. This error situation can occur when four or more stations are mentioned as heard in-car during a given quarter-hour. Five minutes of listening is credited to each reported station.

Unusable time information. When no usable times are provided (e.g. "listened all day") no listening is recorded.

Listening at more than one location on same time span (e.g. 10:00AM - 11:00AM at home and in-car). Listening is proportionately split between both locations.

Listening reported past local sign-off time. If listening begins prior to sign-off and extends beyond sign-off, the listening beyond sign-off is deleted unless the AM station shares call letters with an FM station in the same market or an affiliated FM is known to simulcast the AM station's programming.

Where listening is split across dayparts, proportionality is maintained within each affected daypart.

Other Editing Situations

In addition to the critical areas of call-letter credits and appropriate crediting of time spent listening, Editors are required to review all other recorded data such as county codes, ethnic codes, qualitative and product usage codes.

Editing reference materials provide parameters for each question in the Birch Radio interview, and Editors research and make proper credits in all apparent error situations.

6. Weighting and Processing

Why Weight?

While Birch Radio's personal telephone interview methodology yields consistently high Response Rates, some groups of respondents may be over- or under-represented in tabulated samples.

It is important that inherent sampling imbalances be corrected, as listening behavior can vary widely across disparate universe segments.

Birch Radio utilizes a weighting scheme to correct for such sampling imbalances, so that all groups are represented in Birch tabulations in proportion to their representation in the measured universe.

Steps to Weighting Birch Samples

There are two phases of weighting utilized in the tabulation of Birch Radio reports: the Design Weight Phase and the Sample Balancing phase.

1. Design Weights.

Design weights adjust the sample for specific sample selection methods that, if not accounted for in weighting, might cause bias in the estimates.

Birch utilizes day-of-week weights for its Monday-Friday sample to compensate for possible disproportionate sample return by day. Since Monday-Friday, Saturday and Sunday are weighted as independent samples, no cross-daypart weights (e.g., Monday-Saturday) are needed.

2. Sample Balancing

Sample Balancing is utilized to correct for disproportionality within demographic, ethnic and geographic universe segments. Birch found in its 1987-88 study of weighting that balancing the sample within race and within each of 16 discrete sex/age cells also corrected the Birch sample for probability of selection within household.

Sample Balancing is an iterative, multi-dimensional process that computes the minimum weighting required to apportion a sample against known population characteristics.

Birch Radio employs two basic Sample Balancing models in its general market reports:

Non-Ethnic markets: A two-dimensional model is employed. The sample is balanced to market population "marginals" (proportions) on the basis of age/sex and sampling unit (county or groups of counties) characteristics.

Ethnic markets: A three-dimensional model is employed: age/sex, sampling unit and race. Ethnic weighting controls are applied in all markets where 10% or more of the population is Black and/or Hispanic, or the Black and/or Hispanic population is 60,000 or greater.

Hispanic Target Market Reports (HTMRs): A two-dimensional model allows balancing to age/sex and sampling unit. HTMRs utilize two sampling units: High Density Hispanic Areas (consisting of zip codes with Hispanic population compositions of 30% or greater) and all other areas.

A final weight value, the product of the Design Weights and the Sample Balancing weights, is known as the Per-Person Interview Value (PPIV). Each interview in-tab carries a slightly different PPIV.

All projections of estimates utilize the PPIV's.

Types of Reported Data

There are two basic data types utilized in all Birch Radio audience estimates: Average Quarter Hour (AQH) and Cume.

Average Quarter Hour (AQH): Defined as the audience to a given station or radio in an average quarter hour.

AQH projections are developed by summing the weighted gross quarter hours of listening (each contributing respondent's PPIV times the total reported quarter hours) within a given universe segment and dividing by the number of quarter hours in the given daypart.

AQH audiences are expressed in reports in one of the following manners:

- Persons: the AQH audience in thousands;
- Rating: AQH persons expressed as a percentage of all universe persons;
- Share: Station AQH persons expressed as a percentage of all Radio listeners.

Cume: Defined as the number of different persons who have reported hearing the given station for five or more minutes during the given daypart.

Cume projections are developed by summing the weights of all members of the given universe segment who have reported hearing the given station for five or more minutes within the given daypart.

Birch Radio utilizes two types of Cume estimates: Average Daily Cumes (which are tabulated as described above) and Weekly Cumes.

Cume audiences are expressed as either Persons or Ratings.

Weekly Cume Projections

Birch Radio provides Weekly Cume estimates in all published ratings reports. The majority of data (80% or more) used in projecting Birch Weekly Cumes is derived from observed data (data acquired directly from respondents in tabulation). A model is used to project the remaining portion of the Weekly Cume because respondents are reporting only two days of cume information.

Birch weekly cume estimates are based on a combination of measured data and a model developed by Jim Yergin, former VP/Research for Westinghouse Broadcasting, who developed the NuMath Reach and Frequency model that today is universally used by agencies and broadcasters.

The Birch model is based on the following input data:

Average Daily Cume: Based on listening reported by respondents, a station's Average Daily Cume is normally approximately 60-70% of its Monday-Friday Weekly Cume;

Daily Listening Duplication: Also based on reported listening, respondents report whether or not stations heard yesterday were also heard on the day before yesterday. Duplication levels are the percentage of Daily Cume listeners who also listened to the reported station on a prior day.

Turnover Curves: A series of coordinates which comprise the heart of the model.

Extensive research by Yergin and Birch has resulted in development of "curves" which allow estimation of total weekly cume on the basis of the daily cume and the percentage of daily duplication.

Mathematically, the greater the daily duplication, the lower the growth from daily to weekly cume. The essence of the Birch model is that each station's weekday audience consists of a distribution of 5-, 4-, 3-, 2- and 1-day listeners.

Yergin's research discovered that the distribution of days of listening is highly correlated to the percentage of daily duplication. Stations with high levels of daily duplication have far more 4- and 5-day listeners than do stations with low levels of daily duplication ... so stations with high daily duplication levels accumulate audience more slowly than stations with low daily duplication. These relationships form the basis for the cume estimation model.

Yergin has developed daily to weekly turnover factors that account for the rate at which the duplicated and unduplicated portions of a station's audience accumulate.

Birch Radio computes the Monday-Friday weekly cume by:

- Estimating the station's daily duplicated and unduplicated audiences (from observed data);
- Determining the applicable duplicated and unduplicated turnover factors (utilizing the model);
- Multiplying the daily duplicated audience by the applicable duplicated turnover factor and multiplying the daily unduplicated audience by the applicable unduplicated turnover factor;
- Summing the total of weekly duplicated and unduplicated audiences.

Monday-Sunday cumes are developed through addition of unduplicated Saturday and Sunday daily cume audiences to the Monday-Friday weekly cume audiences.

Data Types in Qualitative/Product Usage Section

The Qualitative/Product Usage Section utilizes the same AQH and Cume data types, but includes three different manners of presenting the data:

Penetration: The Penetration estimate within a given category is defined in the same manner as the cume, and is expressed as a rating (percentage of the population).

Penetration estimates are made within Qualitative or Product Usage categories, to estimate the number of different members of the given category who have listened five or more minutes to the indicated station.

Penetration estimates indicate audience size.

Composition: Composition estimates are provided for both AQH and Cume; the Composition is equal to the audience within the given category, expressed as a percentage of the total audience to the indicated station.

Composition estimates are a measure of the *skew* of the audience, not the size.

Index: Cume composition estimates are expressed as a percentage of total radio cume composition.

The Index allows comparison of Cume Composition across stations. An Index value of 100 indicates that the station cume composition of the given category is equal to average station cume composition; an Index of 180 indicates that the station skews more heavily to members of the given category than the average station.

Index estimates highlight comparative audience *skews*, not audience size.

1990 QUALITATIVE CATEGORIES

	WINTER '90	SPRING '90	SUMMER '90	FALL '90
Income				
Occupation				
Education				
HH Size				
Working Women				
Airline				
Fast Food				
Soft Drink Diet				
Soft Drink Regular				
Banking Services				
Convenience Store				
Auto Purchase				
Light Beer				
Regular Beer				
Furniture Purchase				
Audio/Video Purchase				
Movie Visits				
Grocery Expenditures				

7. Birch Radio Report Formats

The Uses of Birch Radio Reports

There are four primary uses for radio audience estimates:

Programming. Programmers must stay abreast of fast-breaking shifts in listening habits. They must be aware of how listening is shared and whether time spent listening is increasing or decreasing.

Buying. Agencies need a consistent yardstick for measurement and comparison of radio audience deliveries. And agencies need to know many of the same things station programmers and sales reps need to know: how listening is shared, who is listening and when they're listening.

Selling. Stations must be able to demonstrate value to advertisers and agencies. In today's increasingly fragmented radio markets, stations must find new and innovative ways to differentiate their stations from the pack.

Negotiating. Ratings form the basis for negotiation of spot prices, performance bonuses for programming and management personnel, fees for syndicated, special event and network programming. Ratings trends are also an important component of station valuations for buyers and sellers.

Birch Radio seeks to meet the requirements of each of these functions by offering a comprehensive syndicated radio audience rating system for each measured market, matched to the unique needs of each individual market.

Basic Report Formats

Birch Radio uses five basic report types in all service configurations:

Quarterly Summary Report (QSR): QSRs are produced once per quarter on a seasonal quarter basis and include the most recent three month sample data. QSRs provide extensive AQH and Cume data (provided in the Target Demographic and Daypart data sections) for a variety of dayparts and demographics as well as reports on:

- *County by County* - Total week AQH and Cume audiences
- *Cume Duplication* - Weekly Cume audience sharing in key demographics
- *Location of Listening* - AQH audiences at home, in-car and at other away-from-home locations for key demos
- *Ethnic and Demographic AQH Audience composition* - Illustrating cell-by-cell demo compositions and compositions across non-ethnic, Black and Hispanics
- *Exclusive Cumes* - estimates of the different people who have listened only to the given station during the past week
- *Hour By Hour* - a full page of AQH estimates for each hour 5:00AM - Midnight
- *Trends* - AQH share trends over a five-report (one year) period in key dayparts and demographics
- *Rankers* - rankings of AQH and Cume audiences in a variety of dayparts and demographic configurations.

- **Qualitative/Product Usage** - AQH and Cume estimates by extended categories such as Household Income, Occupation and Education, usage levels of other media (Newspaper Readership and Television Viewing), and consumer goods and services usage and/or planned consumption.

Standard Market Report (SMR): SMRs contain the same data sections as reported in QSRs, except Trends and individual weekend dayparts are not reported.

Hispanic and Black Target Market Reports (HTMR and BTMR): These reports contain the same data sections as the SMR, except Hour by Hour, County by County, and individual demographic estimates are omitted.

Condensed Market Report (CMR): CMR reports, used only in small markets, provide limited demographic breakouts of AQH and Cume listening in the standard weekday and total week dayparts.

Monthly Trend Report (MTR): MTRs are produced in all Continuous Measurement markets on a two-month rolling tabulation basis. Each MTR includes a variety of AQH Share and Cume Rating trend pages, current period persons, share and ratings estimates in key dayparts and demographics, summarized Hour By Hour total audience AQH persons and share estimates, and Percentage Change Indices that illustrate the degree to which audience has changed subsequent to previous QSR sweep periods.

In order to gain stability and consistency of estimates, Birch Radio bases Qualitative/Product Usage category estimates on samples collected over three to six month periods.

QUARTERLY SUMMARY REPORTS

[illegible]

Demographics & Dayparts Provided in BIRCH RADIO MONTHLY TREND REPORTS

	M-F	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	6A-10A, 3P-7P	6A-3P	3P-12M	6A-7P	M-SAT	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	M-SU	6A-12M	SA	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SU	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SA/SU	6A-12M	M-F Hour-By Hour
ADULTS																																	
18+																																	
18-34																																	
18-44																																	
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MEN/WOMEN																																	
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55-64																																	
55+																																	
65+																																	
PERSONS																																	
12+																																	
12-17																																	

Demographics & Dayparts Provided in BIRCH RADIO CONDENSED MARKET REPORT

	M-F	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	6A-10A, 3P-7P	6A-3P	3P-12M	6A-7P	M-SAT	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	M-SU	6A-12M	SA	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SU	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SA/SU	6A-12M	M-F Hour-By-Hour
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PERSONS																																	
12+																																	
12-17																																	

Demographics & Dayparts Provided in BIRCH RADIO CAPSULE REPORT

	M-F	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	6A-10A, 3P-7P	6A-3P	3P-12M	6A-7P	M-SAT	6A-12M	6A-10A	10A-3P	3P-7P	7P-12M	M-SU	6A-12M	SA	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SU	6A-10A	10A-3P	3P-7P	7P-12M	6A-12M	SA/SU	6A-12M	M-F Hour-By-Hour
ADULTS																																	
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Types of Birch Service Configurations

Birch Radio produces four different types of report services which are designed to fully meet the informational needs of the markets for which they are produced.

Each service may consist of one or more different types of reports:

<u>Type of Service</u>	<u>No. of Markets</u>	<u>Reports Produced</u>
1. Full Service Continuous Measurement	109	QSR, MTR
2. BEAM/QSR	35	QSR, SMR, CMR
3. BEAM/SMR	47	QSR, SMR, CMR, CAP
4. Non-Continuous	70	SMR, CMR, CAP

BEAM - Birch Extended Audience Measurement: Markets are measured continuously, utilizing sample sizes designed for production of reports based on six months rolling tabulation periods. BEAM measurement periods are December-May (Winter/Spring) and June-November (Summer/Fall).

CountyAmerica: These reports are an annual compilation of Birch interviews from metro and non-metro counties, providing estimates for all Continental U.S. counties.

Non-Continuous service normally includes Spring and Fall reports; however many smaller markets are measured once per year either in the Spring or Fall.

Type of service is determined by market size and market demand.

Birch Radio issues the Market List Report following each Spring and Fall seasonal quarterly measurement period. The Market List Report provides a ranking of all Birch-measured markets ranked by population, as well as types of reports produced and measurement schedule listed alphabetically and by state.

For a complete list of all measured markets, contact your Birch Radio sales representative to request an updated Market List Report.

Survey and Delivery Schedule

Birch Radio utilizes a Seasonal Quarter survey sweep schedule for all Continuously Measured Markets.

Seasonal Quarters (Continuously Measured Markets) are:

- **Winter** - December, January, February
- **Spring** - March, April, May
- **Summer** - June, July, August
- **Fall** - September, October, November

Non-Monthly Markets are measured:

- ***Spring*** - December through May
- ***Fall*** - June through November

Monthly Trend Reports are issued on the basis of the most recent two-month survey period.

Monthly Trend Reports are generally mailed within the first fifteen days of each month; all other reports are delivered during the 30-day period following close of the survey period.

HTMRs and BTMRs are produced on the basis of six-month rolling tabulation periods on a calendar-quarter basis. HTMRs are released quarterly, and BTMRs are released semi-annually.

8. Station Information

Station Minimum Reporting Criteria (MRC)

The Birch Radio Editing Department maintains records on the number of times respondents mention hearing radio stations, whether or not the stations are currently on the market roster of stations with estimates reported in published ratings reports.

Birch Radio's Facilities Department continually updates files on some 12,000 radio stations in the United States, Canada and Mexico to assure that Birch Radio Editors are utilizing the updated information on call letters, slogans, facilities and programming in each measured market.

Stations are added to the roster if one (1%) percent or more of the sample mentions the station in three consecutive months.

Listings of Reported Stations and Home Market Assignment

Birch reports list stations above and below a dotted line on each page.

Stations noted above the line are considered "home" to the market, stations below the line have audience within the market but are either home to a different market or are home to the given market and have been flagged to denote violation of published Birch Radio Hypoing Policy Guidelines.

A station is considered home to a market if:

- The F.C.C. city of license is within the market area, or
- The station's city of license is outside of the market, the station utilizes a multi-city station identification which includes a city within the market area and elects to be considered home to the market.

A station may be home to only one market. A station with multi-city identification may not change its home market status within one year after a previous home market election.

Facilities Reporting Procedures

Radio stations are normally provided with Facilities Information Forms (FIFs) twice per year in all Continuously Measured markets, and prior to the start of measurement in Non-monthly markets.

The Birch Radio Facilities Department mails FIFs to all radio stations within a 100-mile radius of the geographic boundaries of the market being measured. In the event that all FIFs are not returned, efforts are made to contact individual station General Managers or Program Directors by phone to attain necessary FIF data. If telephone contact is not made, the Facilities Department utilizes other information sources such as the Standard Rate and Data Service, the Broadcasting Yearbook and or the Radio Programming Profile.

Facilities data is updated immediately upon confirmation of facilities or programming changes in each market.

Unless other sources are utilized, all station facilities and format information is furnished by the stations.

Ratings Distortion and Special Station Activities

Birch/Scarborough Research has joined the other media ratings firms and the Electronic Media Ratings Council (EMRC) in the adoption of Guidelines for Addressing Ratings Distortion. In addition, Birch/Scarborough has adopted a policy of informing report users of certain contests or promotions involving the telephone which may affect survey results.

The Federal Trade Commission "Guidelines Regarding Deceptive Claims of Broadcast Audience Coverage" state with respect to radio audience ratings that radio stations ". . . should not engage in activities calculated to distort or inflate such data - for example, by conducting a special contest, or otherwise varying . . . usual programming or instituting unusual advertising or other promotional efforts designed to increase audiences only during the survey period.

Birch Radio has voluntarily adopted the recommendations of the EMRC regarding Ratings Distortion.

The Federal Trade Commission, in a release dated July 8, 1965, indicated such distortion activities are to be avoided:

The Commission believes that to avoid such deception, television and radio broadcasters, other persons selling advertising or broadcasting time or programs, advertising agencies, and advertisers should, in making claims based on survey results or data, observe the following basic guidelines:

A person (or firm) making a claim concerning the size, composition or other important characteristics of a listening or viewing audience is responsible for seeing to it that the claim is truthful and not deceptive. If he bases his claim on the results of an audience survey, he assumes responsibility for interpreting the data accurately. Thus, he should not engage in activities calculated to distort or inflate such data - for example, by conducting a special contest, or otherwise varying his usual programming, or instituting unusual advertising or other promotional efforts, designed to increase audiences only during this survey period.

It is the intent of these guidelines to emphasize that, while the ratings services have an obligation to follow minimum standards and to provide to the users of such measurements accurate, effective and reliable information, it is also the obligation of broadcast entities to assist in that regard by desisting from activities that might distort the ratings.

Birch/Scarborough Ratings Distortion Policy

Specifically, ratings distortion activities are defined by the EMRC and Birch as those activities aimed at the actual households or people in the rating service's sample that have the potential to influence respondents to report or record more or different listening, readership, viewing than actually occurred or would have occurred under normal circumstances. As well, Birch includes in its description of distortion any inducements or activities aimed at causing the sample to provide profile data other than that which actually fits the household characteristics.

Birch/Scarborough will remove from the sample tabulations all households and individuals that have been contacted or participated in research during survey periods in which respondents have been asked to listen to a specific program or station.

In addition, Birch/Scarborough includes a paragraph in its contracts to station subscribers that forbids participation in distortion activities.

Stations that are reported as having engaged in distortion will be investigated by the Birch/Scarborough Station Activity Committee. Information from the station in question will be requested as well as information from other sources concerning the alleged activity in the determination of the presence of distortion. Should the Station Activity Committee determine that the station has engaged in distortion, one or more of the following alternatives will be elected and applied by Birch/Scarborough:

1. The activity will be noted in the rating book in question as well as on the computer tape. Station estimates will be printed as usual.
2. The activity will be noted in the rating book in question as well as on the computer tape. Station estimates will be printed at the end of the normal alphabetical listing below the "outside metro" dividing line.
3. The station engaging in distortion will be deleted from the entire rating book and computer tape during which the distortion occurred.

Birch/Scarborough Special Station Activities Policy

Birch's policy is to report the nature and substance of any promotion activity which comes to its attention that:

1. Encourages listeners to behave in a certain manner;
2. Encourages listeners to respond with a response provided by the station when answering the phone;
3. Encourages certain responses to questions that a bona fide research company might ask.

In addition, Birch/Scarborough has adopted a policy of informing report users of certain contests or promotions, either on-air or off-air, which encourage listeners to answer their phones in a non-customary manner, or provide information induced by the station's promotion or contest, to callers who may request any radio station listening information.

While there is no way to determine any potential impact, if any, a promotion or activity may have had, Birch/Scarborough believes that it is in the best interest of its report subscribers to fully disclose any event or events which may have had an impact on the reported estimates.

Stations that are reported as having engaged in any promotion or activity will be investigated by Birch/Scarborough's Station Activity Committee. Information from the station in question will be requested as well as information from other sources concerning the alleged activity in the determination of the presence of special activity. Should the Station Activity Committee determine that the station has engaged in a qualifying promotion or activity, one of the following alternatives will be elected and applied by Birch/Scarborough:

1. A notation will be made in the Station Notes page found in the report, as to the qualifying station's promotional activity.
2. A special insert shall be placed within the report, detailing the promotion or activity.

9. Birch Radio Offices and Staff, Special Services

Birch Radio maintains a nationwide staff of professionals in six regional offices to assist Birch Radio subscribers in understanding and using Birch Radio audience estimates.

Birch Radio Offices

Area Serviced

National Sales/Marketing Headquarters
Northeast Regional Office
560 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 871-0011
(201) 871-9862 Fax

Maine, New Hampshire, Vermont
Massachusetts, Rhode Island
Connecticut, New York, New Jersey
Pennsylvania, Delaware, Maryland, D.C.,
E. Ohio, Toronto

Staff:

Craig Harper, Sr. V.P., Local Sales and Services
Phillip Beswick, Sr. V.P., Broadcast Groups/TV Sales
Alan Trugman, Northeast Regional Manager
Rob Womack, V.P./Eastern National Agency/Advertiser Services
Ted Ruback, National Agency/Advertiser Manager
Don Goldsmith, Director, Client Research Services
Phil Sahadi, Manager, Scarborough TV Sales
Scott Chapin, Local Market Manager
Ron Fried, Local Market Manager
Chris Wilson, Local Market Manager
K.T. (Katharyn) Goldthorpe, Account Executive

Southeast Regional Office
2110 Powers Ferry Rd., Suite 250
Atlanta, Georgia 30339
(404) 955-6317
(404) 952-1310 Fax

Virginia, N. Carolina, S. Carolina, Georgia
Florida, Alabama, Mississippi, Tennessee
Kentucky, W. Virginia

Staff:

Brad Guagnini, Manager, Southeast Region
Barbara Blair, V.P./Local Market Manager
Margo Bensen, Account Executive/CountyAmerica
Angela Scheid, Local Market Manager
Don Williams, Local Market Manager

Midwest Regional Office
5105 Tollview Drive, Suite 270
Rolling Meadows, Illinois 60008
(708) 392-5353
(708) 392-0053 Fax

Michigan, Ohio, Indiana, Illinois, Wisconsin
Minnesota, Iowa, Missouri, Kansas,
Nebraska, N. Dakota, S. Dakota, W. Ohio

Staff:

John Dussling, Manager, Midwest Region
Jill Snyder, V.P./Midwest Agency/Advertiser Services
Jennifer Hodlick, Local Market Manager
Jon Kizer, Local Market Manager
Sheila Whitlow, Local Market Manager
Evan Goldfarb, Account Executive
Joan DeLott, Manager, New Business Development

Birch Radio Office**Area Serviced**

Southwest Regional Office
14800 Quorum Drive, Suite 465
Dallas, Texas 75240
(214) 934-3805
(214) 934-3808 Fax

Arkansas, Louisiana, Texas
Oklahoma, New Mexico, Kansas,
Missouri

Staff:

Larry Gorick, V.P./Southwestern Region
Jalene Noble, Manager, Southwest Region
Theresa Nichols, Local Market Manager
Lori Sandridge, Local Market Manager

Western Regional Office
18401 Burbank Blvd., Suite #119
Tarzana, California 91356
(818) 343-1244
(818) 343-9243 Fax

Washington, Oregon, California
Arizona, Nevada, Idaho, Montana
Wyoming, Utah, Colorado
New Mexico, Alaska

Staff:

Julie Goldsmith, V.P./Western Region
Sue Marohl, Local Market Manager
Lisa Hidalgo, Local Market Manager

Birch/Scarborough Research Corp.
Corporate Headquarters
VNU Operations Center
12350 NW 39th Street
Coral Springs, Florida 33065
(305) 753-6043
(305) 755-1233 Fax

Staff:

William P. Livek, President/C.E.O.
William E. Engel, President, VNU Operations/Executive V.P., Birch/Scarborough
Merle Hope Lambert, Director, Corporate Communications
Susan Sanford, Director, Product Management
Melanie McKennon, Scarborough TV Sales
Michael Hoffman, Client Services Manager
Tom Elmo, Client Services Representative

Special Services

In addition to syndicated, published ratings reports, Birch Radio offers the following special services:

BirchPLUS Micro-Computer Data Analysis System (for Broadcasters). BirchPLUS is a micro-computer system of ratings retrieval and analysis. Supporting delivery of monthly, quarterly and qualitative ratings via diskette, BirchPLUS provides users with a variety of analysis programs including:

- Customized Trend Reports
- Schedule Optimization
- Audience Profiles
- Ranking Summaries
- Reach and Frequency Analyses
- Cost Per Thousand and Cost Per Point Rankers
- Rate Card generation
- Multi-book averaging
- Time Spent Listening, Turnover and other programming efficiency analyses

Respondent by Respondent Data Access. Custom tabulations such as zip-defined geographies or cross-tabulations of product and media usage categories (i.e. Heavy Beer Drinkers by Light TV Usage by individual radio stations) are offered on PC-based systems offered by Tapscan, Inc., and Strata Marketing, Inc.

These systems allow users the capability to extend audience segmentation beyond basic demographics to any other measured and reported discriminators (i.e. income, education, occupation, use of financial services, etc.)

Both Strata and Tapscan systems are offered on a flat-fee subscription basis.

For more information, contact Tapscan at 205-987-7456, or Strata at 312-222-1555.

Tape Service. Birch Radio broadcast and agency subscribers can purchase tape access to Birch Radio Quarterly Summary, Monthly Trend, Qualitative/Product Usage and Standard Market Report data.

The following data enhancement services can provide either micro-computer or on-line data access to Birch Radio broadcast and agency subscribers:

Company	Type of Access
Broadcast Management Plus 5150 El Camino Real #D31 Los Altos, California 94022	Micro
Corporate Micro Solutions 120 Amsterdam Avenue New York, New York 10025	Micro

Company	Type of Access
Data Directions 1720 Regal Row #240 Dallas, Texas 75235	Mini-computer
Donovan Data 115 W. 18th St. New York, New York 10011	On-line
Interactive Market Systems 55 5th Avenue New York, New York 10035	On-line
Jefferson Data Systems 501 Archdale Drive Charlotte, North Carolina	Micro
Katz Radio 1 Dag Hammerskjold Plaza New York, New York 10017	On-line, Micro
Market Buy Market 5775 E. Los Angeles Avenue Simi Valley, California 93063	On-line
Marketron 21031 Ventura Blvd. #1020 Woodland Hills, California 91364	On-line, micro
Marketing Resources Plus 1451 California Ave. Palo Alto, California 94304	Micro
Strata Marketing 540 N. Lake Shore Drive Chicago, Illinois 60611	Micro
Tapscan 3000 Riverchase Galleria, #1111 Birmingham, Alabama 35244	Micro
Telmar/EDS 20 New Dutch Lane Fairfield, New Jersey 07006	On-line, Micro

TrendAmerica. The Birch Radio national local-market summary of listening trends in each Continuously Measured Birch Radio market. Each monthly TrendAmerica report provides total-week AQH Share Trends for the previous six monthly reports in the demographics of Total Persons 12 + , Men 18 + , Women 18 + and Teens.

DataNOW. Birch Radio provides customized tabulations based on special client requirements.

Birch Radio subscribers may order DataNOW tabulations by calling their Birch Radio sales representative. DataNOW tabulations are normally delivered within 48 hours of order confirmation.

Examples of DataNOW reports:

- *Custom Areas.* Projected AQH and Cume persons estimates area available for individual counties or combinations of counties. AQH Share and Cume Ratings estimates are available for custom areas.
- *Custom Survey Periods.* Subscribers may order tabulations of individual months or special combinations of months.
- *Ethnic Listening Reports.* AQH Share and Cume Ratings estimates are available for Non-Ethnic, Black or Hispanic reports.
- *File Listings.* A respondent by respondent accounting of all data used in tabulation of published reports. File Listings provide zip code, ethnic and demographic group, county code, and complete listening information reported by each respondent.

10. Research and Development

Since 1978, Birch Radio has continually refined its measurement and reporting techniques. Internal research studies have resulted a wide variety of techniques and procedures which are currently in use.

Birch internal research and development studies have lead to product improvements such as:

1981

Single Person Per Household Respondent Selection

1982

Collection of qualitative and product usage data on radio listening questionnaire

Addition of Cume Duplication, Location of Listening, Ethnic Composition and County by County data to Quarterly Summary and Standard Market Report formats

1983

Micro-computerized ratings retrieval and analysis

Development of TrendAmerica and PRIZM/Birch Profiles On Radio reports

1984

Weekly Cume Projection from single respondent interview

1985-86

Centralized WATS-center data collection

28-day measurement

Day of Week weighting, allowing for over-sampling of weekends

Daily Sample Replicates

Nielsen Total Telephone Frame Samples

Methods Testing

Birch Radio methods tests are conducted in an isolated manner from syndicated market studies and are generally used internally by the Birch Radio Research Department to test refinements in sampling and data collection techniques.

In 1985 and 1986, the following proprietary tests were internally conducted by the Birch Radio Research Department:

Test Period and Name	Description
<i>Spring 1985:</i>	
Baltimore 4-Way Test	Test of changes in Respondent Selection Procedures
<i>Summer 1985:</i>	
Tampa "Last Birthday" Test Tampa Random Respondent Test	Respondent Selection Techniques
Ft. Lauderdale Child Listening Study	Feasibility of telephone collection of 8-11 year-old radio listening
<i>Fall 1985:</i>	
Ten Market Study: Effects of Probability of Selection and Day of Week Weighting	Retabulation of syndicated market reports under weighting algorithms
<i>Winter 1986:</i>	
Respondent Alert Test	Split-frame sample to test effects of mailed alert prior to telephone interview
<i>Summer 1986:</i>	
Households as a Percentage of the No-Answer/Busy Statistic	Update of estimates of residences included in but unreachable after three attempts
Aided Recall Assist on Slogan Conflicts and "Hot" Call Letters	Examine new ways to improve interviewer probes for station identification
Introduction and Sequence Changes to Questionnaire	Test of new introduction and modifications to sequence of questions in basic questionnaire
<i>Fall 1986:</i>	
NAB Radio Audience Measurement Task Force/Methods Test	Test effects of additional callback attempts, night vs. day callbacks, examination of potential bias in calling plan, refusal conversion techniques
<i>1987:</i>	
Horizontal/Vertical Study	Measured the effects of rolling sample over from day to day vs. a designated day with week to week rollover
Gainesville Study	Observed the effects of AQH and Cume by the number of attempts in which the respondent was contacted

Alternating Male and Female Test	An analysis of a respondent selection technique
Answering Machine Test	Designed to measure the incidence of answering machines among households and the number of attempts a respondent's answering machine was encountered
Multiple Telephone Study	Designed to measure the incidence of multiple telephones in a household and the effects of weighting by multiple telephone
Attempt Study	Measured the difference between data collected utilizing 3 attempts to reach a respondent and 5 attempts to reach a respondent
1988:	
Weighting Tests	Effects of weighting classes on variance and mean squared error, extended demographic weighting, modification of probability of selection weighting, and weighting of qualitative data.
Replication Study	Calculation of effective sampling bases and statistical efficiency.
No Answer/Unresolved Numbers	Effects on response rate and validation.
Seven-Day Methods	Additional proof on Cume Model and effect of using two-day interview on Cume Duplication and Average Quarter Hour stability.
Response Rate Research	Daytime attempt study, multiple attempts (5), rolling sample across months, and modified opening
Questionnaire Design	Lifestyle anchors, occupation question, and localized retail data

Birch Radio Technical Advisory Board (BRTAB)

The Birch Radio Technical Advisory Board is chartered to provide senior Birch management with advice and counsel on matters relating to sampling, data collection and processing.

The BRTAB consists of leading advertiser, agency and broadcast media researchers. Because of the confidential and technical nature of the Board, members represent both subscribers and non-subscribers. BRTAB meetings are held two to three times per year.

1989 BRTAB members are:

Ms. Corinne Cilli, Director, Media Research
BBDO

Ms. Karen Dixon-Ware, Manager, Worldwide Media
McDonald's

Ms. Terry Drucker, Director, Research
CBS Radio Representatives

Mr. Bruce Goerlich, VP/Corp. Media Research Dir.
D'Arcy, Masius, Benton & Bowles

Mr. Stuart Gray, VP/Dir. of Media Research Services
BBDO

Mr. Bruce Hoban, VP/Dir. of Research
Republic Radio

Mr. Ron Jaco, Sr. VP
Cole & Weber

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Mr. Rob Womack, VP/Eastern National Adv./Agency Services
Mr. Don Goldsmith, Dir., Client Research Services
Dr. Charles Palit, University of Wisconsin, Statistical Consultant
Mr. Keith Crum, Statistical Specialist

Electronic Media Rating Council (EMRC) Accreditation

Birch Radio received EMRC service accreditation in February, 1989.

EMRC accreditation assures that the accredited ratings service:

1. Adheres to the Minimum Standards for Broadcast Research as prescribed by the Council;
2. Supplies full information to the EMRC regarding details of its operations;
3. Conducts its measurements substantially in accordance with representations to subscribers and the Council;
4. Submits to, and pays the cost of, thorough on-going audits of operations by public accounting firms engaged by the EMRC.

11. Glossary of Terms Used By Birch

Average Quarter (AQH): The smallest unit of time used in tabulation of average audience estimates. Birch credits one quarter hour for each five minutes of uninterrupted listening. AQH estimates are reported as Persons, Ratings, and Shares.

Average Quarter Hour Composition: Station AQH audience in a given category expressed as a percentage of total AQH audience. AQH Composition estimates are provided in the Quarterly Summary and Qualitative/Product Usage Reports.

Audience: The estimated persons listening, based on the reported criteria. Audience estimates are reported as Persons, Ratings and Shares.

Birch Defined Metro (BDM): A Birch-defined metropolitan area of measurement.

Capsule Market Report (CPS): A ratings report specially- designed for America's smallest markets and special-event measurement in larger markets.

CMSA - Consolidated Metropolitan Statistical Area: Markets of at least one million population which contain two or more PMSAs. See MSA, PMSA.

Continuous Measurement: Markets measured twenty-eight (28) days per month, twelve (12) months per year by Birch.

Condensed Market Report (CMR): A Birch Radio ratings report produced in smaller markets, utilizing sample sizes of approximately 500 interviews.

Cumulative Audience (Cume): The estimated net unduplicated audience, i.e. the number of different persons who listened for five or more minutes during the given daypart. Cume estimates are reported as Persons and Ratings.

Cume Composition: Station cume audience in a given category expressed as a percentage of station's total cume audience. Cume composition estimates are provided in the Qualitative/Product Usage Report.

Cume Duplication: The estimated number of different persons who reported listening to a combination of two or more stations within the given daypart. Cume Duplication tables display audience sharing across all possible pairs of stations.

Daypart: The period of the day and combination of days within the week within which estimates are made, i.e. Monday -Friday 6:00AM-10:00AM or Monday-Sunday 6:00AM - Midnight.

Demographics: Statistical identification of populations according to age, sex, race, income or other discriminator.

Discrete demographics: Uncombined or non-overlapping sex/age groupings for listening estimates, e.g. Men 18-24 and Men 25-34. "Target" or Combination Demographics (e.g. Men 18-34) are comprised of combinations of discrete demographics.

Electronic Media Rating Council (EMRC): An organization which accredits broadcast ratings services through annual performance of audits of compliance to specified minimum standards.

Ethnic Controls: Specific sampling, data collection and weighting techniques utilized by Birch to assure proper representation of Black and/or Hispanic listeners.

Exclusive Cume: The estimated number of cume listeners reporting listening to one and only one station within a given daypart.

Facility Information Form (FIF): Form used by Birch Radio Facilities Department to attain call letters, power, frequency, sign-on/sign-off times, city of license and pertinent programming information necessary for proper crediting of listening. FIFs are mailed twice annually to stations in Continuously Measured markets and prior to the start of surveying in Non-Monthly markets.

Group Quarters: Residences of all persons not living in nuclear households, e.g. college dormitories, homes for the aged, hospitals, institutions, rooming houses and military barracks. Persons living in Group Quarters are not included in Birch samples in tabulation.

Intab: Interviews included in tabulations of ratings reports.

MSA - Metropolitan Statistical Area: A market with a city population of 50,000 or greater or urbanized area of at least 50,000 within a total metropolitan area of at least 100,000.

Non-Monthly Measurement: Markets measured twenty-eight (28) days per month, three, six, or nine months per year by Birch.

Penetration: Same definition as cume; The estimated net unduplicated audience, i.e. the number of different persons who listened for five or more minutes during the given daypart. Penetration estimates are provided in the Qualitative/Product Usage Reports.

Per Person Interview Value (PPIV): The number of persons represented by each interview in the given sex/age group.

Persons Using Radio (PUR): The total estimated AQH or cume radio listenership within the indicated demographic and daypart.

PMSA - Primary Metropolitan Statistical Area: PMSAs are component metropolitan areas (MSAs) within larger Consolidated Metropolitan Statistical Areas. See MSA.

Rating: The AQH or cume persons estimate expressed as a percentage of the measured universe persons.

Seasonal Quarters: The measurement period used in all Continuously Measured markets. Seasonal Quarters are defined as Winter (December - February), Spring (March - May), Summer (June - August) and Fall (September - November).

Share: The station AQH persons estimate expressed as a percentage of the total persons listening to radio.

Target Demographics: Audience groupings containing multiple discrete demographics, e.g. Men 18-34 is a Target Demographic consisting of Men 18-24 and Men 25-34.

Total Telephone Frame (TTF): Samples of listed and unlisted telephone households, prepared by the A.C. Nielsen company and used for all Birch Radio audience surveys.

TSA - Total Survey Area: TSA reports include configurations of counties outside Metro areas which are served by Metro radio signals. See also MSA, CMSA, PMSA.

Universe: The total number of persons in the indicated demographic and geographic group.

12. Restrictions On Use of Birch Radio Reports

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Birch Radio recommends that the appropriate market, survey period and kind of audience estimate (e.g., New York, Fall 1988 Metro Survey Area, Monday-Friday 6:00AM-10:00AM, Average Quarter Hour Persons, Women 25-54) be included with all quotations of Birch Radio Ratings.

Users of Reports are referred to the current policies of the federal government relating to the use of audience estimates. Neither the Reports nor any of their contents may be used in any manner by non-clients of Birch Radio without express written permission from Birch Radio.

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