

**Before the
COPYRIGHT ROYALTY JUDGES
Washington, D.C.**

In the Matter of

Distribution of the

**2010, 2011, 2012, and 2013
Cable Royalty Funds**

Docket No. 14-CRB-0010-CD (2010-13)

**REBUTTAL TESTIMONY OF
MARTIN R. FRANKEL, PH.D.**

SEPTEMBER 15, 2017

AMENDED FEBRUARY 12, 2018

AMENDED REBUTTAL TESTIMONY OF MARTIN R. FRANKEL, PH.D.

A. BACKGROUND

My name is Martin R. Frankel. Until my retirement on August 24, 2017, I worked as a Professor of Statistics and Computer Information Systems at Baruch College, City University of New York. I held this position at various levels (Assistant, Associate, and Full Professor) for more than 30 years. I also held a professional appointment on the Graduate Faculty of the City University of New York. Upon my retirement from Baruch College, City University of New York, I was designated Professor Emeritus. I provided more detailed information about my education and experience, and a copy of my curriculum vitae, in the Written Direct Testimony that I submitted in this proceeding on December 22, 2016, as a part of Program Suppliers' Written Direct Statement. That experience includes my professional activities, including my past work as Chair of the Committee on Standards for the American Association for Public Opinion Research ("AAPOR"), and describes my prior expert testimonies before state and federal courts and administrative agencies, including the Nuclear Regulatory Commission ("NRC") and the Interstate Commerce Commission ("ICC"), addressing statistical sampling, survey sampling, and interpretation of statistical evidence related to surveys. Attached hereto as Appendix A is an updated copy of my curriculum vitae. My Written Direct Testimony in this proceeding also explains the sample selection, estimation, and standard error calculation work that I performed in connection with the cable operator surveys that Program Suppliers commissioned for this proceeding, which were conducted by Horowitz Research, Inc. ("Horowitz").

B. PURPOSE OF REBUTTAL TESTIMONY

Program Suppliers asked me to review the Written Direct Testimony of James M. Trautman and the attached report by Bortz Media & Sports Group, Inc. ("Bortz") entitled *Cable Operator Valuation Of Distant Signal Non-Network Programming: 2010-13* ("Bortz Report"),

as well as the discovery documents related to Mr. Trautman's testimony. Several of these discovery documents were recently produced by the Joint Sports Claimants ("JSC") pursuant to the Judges' January 17, 2018 *Order Granting Program Suppliers' Motion To Compel Unredacted Documents And Data From The Joint Sports Claimants* ("January 17, 2018 Order") which granted Program Suppliers' April 27, 2017 motion and November 21, 2017 renewed motion to compel unredacted documents and data related to the Bortz survey from JSC.¹ In light of JSC's recent production of unredacted documents and data related to the Bortz survey, Program Suppliers asked me to provide my professional opinion regarding the validity of the sampling and estimation procedures undertaken by Mr. Trautman and Bortz to produce the weighted survey results and associated confidence intervals set forth in the Bortz Report.

I replicated the weighted Bortz survey results and its estimates using the newly-produced, unredacted Bortz survey discovery information. I have nonetheless identified at least three problems with the manner in which Mr. Trautman and Bortz performed their sampling and estimation for the Bortz survey and how those two tasks impact the weighted survey results included in the Bortz Report. *First*, Bortz used a sample frame which included Form 3 cable systems that did not carry at least one distant signal when the correct sampling frame (*i.e.*, Form 3 cable systems that carried at least one distant signal) was available. *Second*, Bortz did not make an appropriate correction for this overinclusion of Form 3 cable systems without distant signals when producing its weighted estimates. *Third*, Bortz disadvantaged cable systems that carried only PBS stations, Canadian stations, or PBS and Canadian stations as distant signals by

¹ See Program Suppliers' Reply In Support of Renewed Motion to Compel Production of Unredacted Documents and Data from the Joint Sports Claimants (December 13, 2017); Program Suppliers' Renewed Motion to Compel Production of Unredacted Documents and Data from the Joint Sports Claimants (November 21, 2017); Program Suppliers' Reply In Support Of Motion To Compel Production Of Unredacted Documents And Data From The Joint Sports Claimants (May 18, 2017); Program Suppliers' Motion To Compel Production Of Unredacted Documents And Data From The Joint Sports Claimants (April 27, 2017).

arbitrarily excluding these systems and affording them no value when producing its weighted estimates. Such an arbitrary exclusion had a substantial impact on all of the Bortz survey estimates, as demonstrated by my below estimation.

C. PROBLEMS WITH WEIGHTED BORTZ SURVEY RESULTS.

The Bortz Report indicates that the 2010-13 Bortz cable operator surveys are based on a sample of 2010-13 Form 3 cable systems. In order to select its sample, Bortz obtained an initial sample frame that consisted of the “universe level royalty data (*i.e.*, the royalty amounts paid by all Form 3 systems) from records compiled by the Copyright Office based on [Statements of Account] filed by cable systems for the first accounting period of each survey year.”² Bortz then stratified the sample frame into four strata of royalty classes, one of which required that all systems within that stratum be included in the sample (*i.e.*, the largest royalty payers).³ Sample systems were then randomly selected from the remaining three strata in accordance with the sample size requirements determined for each stratum.⁴ After randomly selecting its sample systems from each stratum, Bortz eliminated systems that carried no distant signals, systems carrying PBS-only, Canadian-only, and PBS- and Canadian-only signals, and created a final eligible sample for each of the 2010-13 royalty years.⁵

1. Incorrect Sample Frame.

As set forth above, the Bortz Report describes the stratified random sampling process it used to select each year’s sample of cable systems and the estimation process implemented by Bortz to produce the weighted Bortz survey results and confidence intervals for each year. In order to replicate the weighted Bortz survey results and its estimates, I analyzed the new,

² Bortz Report at 11.

³ *Id.*

⁴ *Id.*

⁵ *Id.* at 13-14.

unredacted JSC discovery materials referenced above in addition to JSC's original discovery materials, and identified the universe of Form 3 cable systems from which each sample of systems was randomly selected for each of the 2010-13 cable royalty years.

Once I identified the universe of Form 3 cable systems for each cable royalty year at issue in this proceeding, Cable Data Corporation ("CDC") provided me with information separating the different cable systems in the Bortz survey universe each year into the following five categories: (1) systems with no distant signals; (2) systems carrying only a distant PBS signal; (3) systems carrying only a Canadian distant signal; (4) systems carrying only PBS and Canadian distant signals; and (5) systems with distant signals and any mix not in any of the foregoing groups 1 through 4. In addition, Berkley Research Group provided me with the following information from the newly produced, unredacted Bortz data for the particular systems in the Bortz survey universe that were actually surveyed by Bortz each year: (1) Strata; (2) Royalties; (3) System Name; (4) City; (5) State Subscribers; (6) Remit #; and (7) each cable system's responses to the Bortz constant sum valuation question.

Using all of this information, I was able to successfully replicate the weighted Bortz survey results and estimates provided in the Bortz Report, as shown in Table 1 on the following page.

TABLE 1 – REPLICATED WEIGHTED BORTZ SURVEY RESULTS AND ESTIMATES FROM DISTANT SIGNAL PROGRAMMING VALUATION STUDIES, 2010-13

	2010	2011	2012	2013
Live professional and college team sports	40.9%	36.4%	37.9%	37.7%
News and public affairs programs	18.7%	18.3%	22.8%	22.7%
Movies	15.9%	18.6%	15.3%	15.5%
Syndicated shows, series and specials	16.0%	17.4%	13.5%	11.8%
PBS and all other programming on non-commercial signals	4.4%	4.7%	5.1%	6.2%
Devotional and religious programming	4.0%	4.5%	4.8%	5.1%
All programming on Canadian signals	<u>0.1%</u>	<u>0.2%</u>	<u>0.6%</u>	<u>1.2%</u>
Total	100.0%	100.0%	100.0%	100.0%

*Columns may not add to total due to rounding. *See also* Bortz Report, Table IV-1, at p. 42.

It is clear from my analysis that, for each year, Bortz used a sample frame which included Form 3 cable systems that did *not* carry at least one distant signal. Instead, Bortz should have used, for each year, a sampling frame of only Form 3 cable systems that retransmitted at least one distant signal.

2. Improper Inclusion Of Royalties Attributable Cable Systems Carrying Distant Signals.

Having already improperly included systems carrying no distant signals in its sampling frame for each year, Bortz then improperly included royalties attributable to those systems in its weighting and estimation calculations. Correcting for this problem by excluding the royalties attributable to Form 3 cable systems carrying no distant signals from Bortz's weighting and estimation calculations changes the weighted Bortz survey results and its estimates for each of the 2010-13 cable royalty years.

3. Improper Exclusion of PBS-Only, Canadian-Only, And PBS/Canadian-Only Systems From Bortz Sample.

Bortz also excluded from its original sample cable systems that carried only PBS stations, only Canadian stations, and only PBS and Canadian stations as distant signals, effectively according those systems zero weight in its estimates. Arbitrarily excluding these distant signals had a substantial impact on all of the estimates. Tables 2-5 below show the resulting weighted estimate of percentages and the associated standard errors⁶ assigned to the various Bortz programming categories for royalty years 2010-2013 when corrected to include (1) only the Form 3 cable systems that retransmitted at least one distant signal during each royalty year in question; and (2) cable systems carrying only PBS, only Canadian, and only PBS and Canadian stations on a distant basis.

TABLE 2 – 2010 CORRECTED WEIGHTED BORTZ SURVEY RESULTS AND ESTIMATES FROM DISTANT SIGNAL PROGRAMMING VALUATION STUDIES

	2010	Standard Error
Live professional and college team sports	34.1%	1.64
News and public affairs programs	15.5%	0.96
Movies	13.2%	0.65
Syndicated shows, series and specials	13.4%	0.79
PBS and all other programming on non-commercial signals	15.8%	1.57
Devotional and religious programming	3.2%	0.29
All programming on Canadian signals	4.8%	2.50

*Columns may not add to total due to rounding.

⁶ I calculated standard errors for the Horowitz survey results, and have done so for the Bortz survey results to provide a better bases for comparing the two survey results. See Written Direct Testimony of Martin R. Frankel, Ph.D., Docket No. 14-CRB-0010-CD (2010-13), at 7-9, Appendix B (filed December 22, 2016).

TABLE 3 – 2011 CORRECTED WEIGHTED BORTZ SURVEY RESULTS AND ESTIMATES FROM DISTANT SIGNAL PROGRAMMING VALUATION STUDIES

	2011	Standard Error
Live professional and college team sports	32.2%	1.03
News and public affairs programs	15.9%	0.81
Movies	16.5%	0.68
Syndicated shows, series and specials	15.3%	0.75
PBS and all other programming on non-commercial signals	16.0%	1.73
Devotional and religious programming	3.9%	0.30
All programming on Canadian signals	0.2%	0.07

*Columns may not add to total due to rounding.

TABLE 4 – 2012 CORRECTED WEIGHTED BORTZ SURVEY RESULTS AND ESTIMATES FROM DISTANT SIGNAL PROGRAMMING VALUATION STUDIES

	2012	Standard Error
Live professional and college team sports	34.9%	1.44
News and public affairs programs	21.0%	0.83
Movies	14.1%	0.66
Syndicated shows, series and specials	12.3%	0.50
PBS and all other programming on non-commercial signals	11.3%	1.38
Devotional and religious programming	4.4%	0.29
All programming on Canadian signals	2.1%	1.04

*Columns may not add to total due to rounding.

TABLE 5 – 2013 CORRECTED WEIGHTED BORTZ SURVEY RESULTS AND ESTIMATES FROM DISTANT SIGNAL PROGRAMMING VALUATION STUDIES

	2013	Standard Error
Live professional and college team sports	33.6%	1.37
News and public affairs programs	20.1%	0.95
Movies	13.9%	0.70
Syndicated shows, series and specials	10.5%	0.63
PBS and all other programming on non-commercial signals	14.5%	2.10
Devotional and religious programming	4.5%	0.25
All programming on Canadian signals	2.9%	1.29

*Columns may not add to total due to rounding.

Notably, unlike Bortz, in my sample selection work for the Horowitz survey I utilized the correct sampling frame, which was all Form 3 cable systems carrying at least one distant signal. Also, unlike Bortz, once Horowitz completed its survey of cable system operators, I used the survey responses to provide a weighted estimate of the percent dollar allocation that all cable systems would assign to the eight programming categories discussed in the Horowitz survey, and I did not arbitrarily exclude cable systems carrying only PBS, only Canadian, and only PBS and Canadian stations as distant signals when producing my estimates.⁷ Accordingly, the Horowitz survey weighted results and the standard errors I produced associated with those weighted results do not suffer from the same problems that I identified in my analysis of the Bortz survey.

Furthermore, I do not mean to suggest by my replication and suggested corrections to the Bortz survey results that I support the Bortz survey as the basis for allocating the royalties at issue in the case. If the Judges choose to rely on an operator survey in this proceeding, it is my

⁷ See Written Direct Testimony of Martin R. Frankel, Ph.D., Docket No. 14-CRB-0010-CD (2010-13), at 7, Appendix B (filed December 22, 2016).

opinion that the Horowitz survey presents a better approach based on some of its improvements to the Bortz survey.

D. CONCLUSION

While I was able to successfully replicate the weighted Bortz survey results and estimates provided in the Bortz Report, as discussed above, the Bortz Report suffers from three key problems; to wit: (1) Bortz used a sample frame which included Form 3 cable systems that did not carry at least one distant signal; (2) Bortz improperly included the royalties attributable to Form 3 systems that did not carry at least one distant signal in producing its weighted estimates; and (3) Bortz disadvantaged cable systems that carried PBS-only, Canadian-only, or PBS- and Canadian-only stations as distant signals by arbitrarily excluding these signals when producing its estimates. Correcting for these errors causes a substantial impact in the Bortz survey weighted results, and also impacts the standard errors associated with those results.

Notably, unlike Bortz, the weighting and estimation procedures I performed in connection with the Horowitz survey do not suffer from these same problems, as I used only the universe of Form 3 cable systems that carried at least one distant signal, and I did not exclude cable systems that carried only PBS stations, only Canadian stations, or only PBS and Canadian stations as distant signals.

I thank the Judges for the opportunity to provide testimony in this proceeding, and I hope my analyses are helpful to the Judges.

Declaration of Martin R. Frankel

I declare under penalty of perjury that the foregoing testimony is true and correct, and of my personal knowledge.

Executed on February 12, 2018.

A handwritten signature in black ink, appearing to read 'M. R. Frankel', written over a horizontal line.

Martin R. Frankel, Ph.D.

APPENDIX A
CURRICULUM VITAE

MARTIN RICHARD FRANKEL

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EDUCATION: A. B. (Mathematics)
University of North Carolina, 1965
M. A. (Mathematical Statistics)
The University of Michigan, 1967
Ph. D. (Mathematical Sociology)
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PROFESSIONAL EXPERIENCE:

PRESENT: Professor Emeritus, Statistics and Information Systems, Baruch College, City University of New York.

2017-1980: Professor of Statistics and Computer Information Systems, Baruch College, City University of New York. (1980-present). Deputy Chair (1994-2001).

1975-79: Associate Professor of Statistics, Baruch College, City University of New York.

1973-74: Assistant Professor of Statistics, Graduate School of Business, University of Chicago.

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- 1971-72: Assistant Professor of Statistics, Baruch College, City University of New York.
- 1965-70: Research Associate, Survey Research Center, Institute for Social Research, the University of Michigan. (Research Assistant 65-68).
- 1973-1996: Senior Statistical Scientist, NORC, The University of Chicago
- 1996-2012: Senior Statistical Scientist, ABT Associates, Cambridge, MA.

PUBLICATIONS:

BOOKS:

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- "A Comparison of Reach and Frequency Estimates: Single Versus Dual Interview Approaches," in Henry, H., Ed., Readership Research: Montreal 1983. Amsterdam: Elsevier Science Publishers B.V. (with Adam Richard)
- "The State of Audience Measurement in the United States," in La Mosaïque Télévisuelle: Du petit écran au centre de contrôle, Congrès ARCQ, Montreal, 1985.
- "The Attribution of Missing Data: Damned If You Do and Dammed If You Don't," Fifth Annual ARF Research Quality Workshop: Transcript Proceedings. New York, Advertising Research Foundation, 1987.
- A Household Survey of the Health Insurance Status of Massachusetts Residents: Final Report, Department of Health Policy and Management, Harvard School of Public Health, 1990
- 1988 Physician's Practice Costs and Income Survey: Final Report, NORC, University of Chicago, 1991 (co-author)
- "A Comparison of Computer-Assisted Personal Interviews (CAPI) With Personal Interviews in the National Longitudinal Survey of Labor Behavior-Youth Cohort," Proceedings 1991 Annual Research Conference, Bureau of the Census, U. S. Bureau of the Census, 1991 (co-author)
- "Repatriation and Disability: A Community Survey of Health, Mental Health, and Social Functioning of the Khmer Residents of Site Two. Volume 1 Khmer Adults," Working Document Harvard Program in Refugee Trauma, Harvard School of Public Health and World Federation of Mental Health, 1992 (co-author).

- Arrowhead 12 - The Effect of Interview Attempts on Survey Results, New York: Advertising Research Foundation, 1992 (co-author).
- National Education Longitudinal Study of 1988 - First Follow-Up: Student Component Data File User's Manual Vol. 1, National Center For Education Statistics, 1992 (co-author)
- "Sample Representativeness in Electronic Data Bases." Media Research on the Leading Edge, New York: Advertising Research Foundation, 1992. pp. 75-78.
- "Two Papers on the Use of Computer-Assisted Personal Interviews in the National Longitudinal Survey of Youth, U.S. Department of Labor, Report NLS 92-2. pp. 1-8 and pp. 1-14. (co-author)
- "Estimation of Turnover in Readership Surveys," Readership Research Symposium 6: Session Papers, 1993: London: RSL. PP 525-530.
- "Dropping Out of School: 1982 and 1992," U.S. Department of Education, Office of Educational Research and Improvement, Issue Brief, August 1993. PP 1-2. (co-author)
- "Integrating Results of Physician Practice Cost Surveys, Final Report," Health Policy Research Consortium, Heller Graduate School, Brandeis University, October 1992. pp. 1-73. (co-author)
- "Benchmarking Readership Levels in the New Study of Media and Markets to the Survey of American Readership," Worldwide Readership Research Symposium VII (Berlin), 1995. pp. 329-332. (lead author) Winner of Best Technical Paper Prize.
- "The Interviewer Effect on Readership Levels," Worldwide Readership Research Symposium VII (Berlin), 1995. pp. 329-332.
- "Enhanced Ascription in Magazine Audience Research," Worldwide Readership Symposium VIII (Vancouver), October, 1997 pp. 117-130.
- National Education Longitudinal Study of 1988, Users Manual, National Center for Education Statistics, September 1994, Co-Author.
- Bloomberg SJ, Osborn L, Luke JV, Olsen L, and Frankel MR. "Estimating the prevalence of uninsured children: An evaluation of data from the National Survey of Children with Special Health Care Needs, 2001." National Center for Health Statistics, Vital Health Stat 2(136), 2004

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- FEDERAL COURT (ALABAMA): Expert witness in statistics and demography on behalf of Southern Poverty Law Center for redistricting of Alabama after 1970 Census. (1973-4)
- COPYRIGHT ARBITRATION ROYALTY PANEL: Expert witness on behalf of the Motion Picture Association of American, (1989, 2003, 2007)

PROFESSIONAL HONORS:

- Harry O'Neill Outstanding Achievement Award, NYAPPOR, 2013
- Warren J. Mitofsky Innovators Award, American Association for Public Opinion Research, 2011
- Elected to Hall of Fame, Market Research Council, 2007
- Elected to Membership, International Statistical Institute, 1980
- Fellow, American Statistical Association, 1978

SELECTED PROFESSIONAL ACTIVITIES:

- Chair, Committee on Standards, American Association for Public Opinion Research, (1988-89).
- Chair, Research Quality Council, Advertising Research Foundation, 1988-present.
- Chairman, Section on Survey Research Methods, American Statistical Association (1975-1976).
- Associate Editor, Journal of the American Statistical Association. (1973-1981).
- Member of Editorial Board, Public Opinion Quarterly (1977-1983, 1986-1990).
- Member of Editorial Board, Sociological Methods and Research (1979-1983).
- Chairman, American Statistical Association Advisory Committee to the U. S. Census (1981), Member (1975-1981).
- Member of Editorial Board, Encyclopedia of Statistical Sciences, John Wiley & Sons, (1980-1985).
- Member, Panel on Occupational Safety and Health Statistics, Committee on National Statistics, National Research Council, National Academy of Sciences. (1985-1987)

- Member, Panel on the Functionality and Usability of Data from the American Community Survey, Committee on National Statistics, National Research Council, National Academy of Sciences. (2004-2005)
- Member, External Advisory Committee, Program in Survey Methodology, The University of Michigan (2002-2004).
- Fellow, American Statistical Association Fellow, (1978)
- Fellow, International Statistical Institute (elected 1980)
- President, Market Research Council, 1995
- Biographee: Who's Who in America
- Biographee: American Men and Women of Science
- Hall of Fame, 2007, Market Research Council

SELECTED APPEARANCES INVOLVING THE PRESENTATION AND INTERPRETATION OF STATISTICAL EVIDENCE FOR LEGAL AND ADMINISTRATIVE PROCEEDINGS

- SUPREME COURT OF THE STATE OF NEW YORK: Introduced the use of statistical sampling for the determination of the weight of narcotics. Accepted by the Court and Jury. (1997)
- FEDERAL COURT (IOWA): Expert witness survey methods for U.S. Department of Justice, Anti-Trust Division (1995)
- FEDERAL COURT (DETROIT): Expert witness survey sampling and methods for A.C. Nielsen Company (1993)
- FEDERAL COURT (NEW YORK) Expert witness sampling and estimation. J Lefcourt (1985)
- NUCLEAR REGULATORY COMMISSION: Expert witness statistical sampling and quality for Commonwealth Edison Company (License hearing for Byrom and Braidwood Nuclear Power Stations. (1980-1984)
- INTERSTATE COMMERCE COMMISSION. Expert witness statistical sampling and estimation on behalf of Union Pacific Railroad merger with Western and Missouri Pacific Railroads. (1975-6)

Certificate of Service

I hereby certify that on Monday, February 12, 2018 I provided a true and correct copy of the Written Rebuttal Testimony of Martin R. Frankel, Ph.D., filed September 15, 2017 in Docket No. 14-CRB-0010-CD (2010-13) and amended February 12, 2018. to the following:

National Association of Broadcasters (NAB), represented by Ann Mace served via Electronic Service at amace@crowell.com

Multigroup Claimants, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Joint Sports Claimants, represented by Michael S Laane served via Electronic Service at sean.laane@apks.com

Devotional Claimants, represented by Benjamin S Sternberg served via Electronic Service at ben@lutzker.com

Canadian Claimants Group, represented by Victor J Cosentino served via Electronic Service at victor.cosentino@larsongaston.com

National Public Radio, Inc. (NPR), represented by Gregory A Lewis served via Electronic Service at glewis@npr.org

SESAC, Inc., represented by John C. Beiter served via Electronic Service at jbeiter@lsglegal.com

Spanish Language Producers, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

American Society of Composers, Authors and Publishers (ASCAP), represented by Sam Mosenkis served via Electronic Service at smosenkis@ascap.com

Public Broadcasting Service (PBS), represented by Lindsey L. Tonsager served via Electronic Service at ltonsager@cov.com

Broadcast Music, Inc. (BMI), represented by Jennifer T. Criss served via Electronic Service at jennifer.criss@dbr.com

Signed: /s/ Lucy H Plovnick