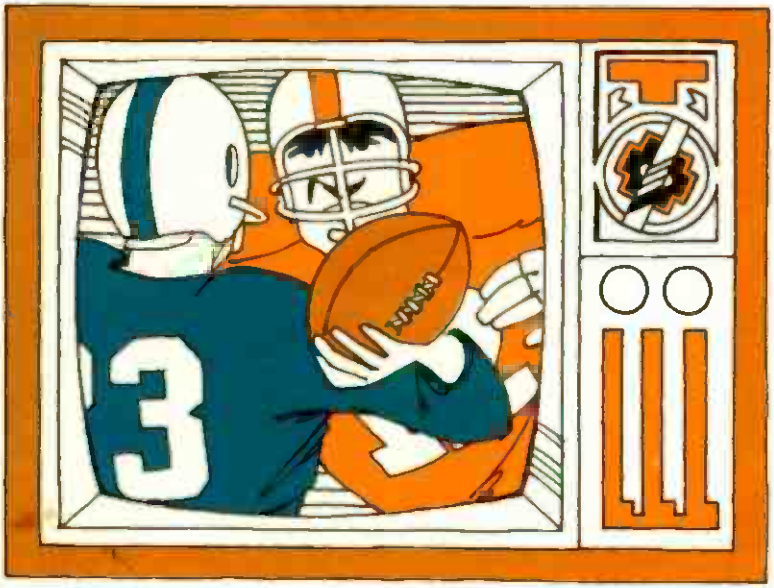
Everything you've always wanted to know about

TV RATINGS

(but were maybe too skeptical to ask)



A.C. Nielsen Company

Have you ever seen an umpire whose decision pleased everyone? Of course not. No matter which way he calls the play, somebody is sure to make dubious comments: about his eyesight, his intelligence; maybe even about his mother.

Our corporate heart instinctively goes out to the "ump"--because in the *television* field, we are his counterpart. Our sometimes unenviable job is to find out how many people watch which TV program. And obviously during a given time period, not every program on the air can attract the largest audience. In fact, only one can.

Trouble is, some people (not *you*, of course) feel that only

the programs they happen to dislike should get low ratings. (Years ago, a viewer actually complained because his favorite program was highly rated, but to this day we think he was only joking.)

Anyway, this little book will explain what "ratings" really are. How they are obtained. Why they are necessary. Who uses them. And how--although you may not have thought of them in this light--TV ratings benefit *you*.

As far as we are concerned, there is no such thing as a TV "rating". Frankly, we don't like the term and wish it would go away.

One of our many business services is *Television Audience Research*...which is to say, measuring the *size of audience* for various TV shows and the *types of people* (age, education, etc.) in that audience.

Right away you see that these are *quantitative* measurements. The word "rating" is a misnomer because it implies a measurement of program *quality*--and this we *never* do. NEVER! But, the word slipped into the TV language because "Television Audience Research" is admittedly quite a mouthful.

Now that we've made the point that the term "rating" stands for measurement of quantity--not quality--we will bite the bullet and use this term, too.

So let's move along to some of the questions that we are most frequently asked--about television in general and ratings in particular.

"How come Nielsen took my favorite program off the air?"

The answer--cross our hearts--is that we didn't. Whether your favorite is a network show, or one that originates at your local TV station, *all programming decisions are made by the network or the station.*

As producers of ratings, we are like the ticket-taker in a theatre who simply counts the house. The theatre *owner* decides if the show is to continue. In television, the "theatre owners" are the networks and stations.

This isn't buck-passing. Those are simply the facts.

"Maybe so... but if you report a low rating, the show DOES go off the air."

Well...often that's true...especially if a show gets an extended *series* of low ratings. But it is by no means always true. You could spot without much trouble the shows that are aired even though something else would get a higher rating: news programs; most of the documentaries and specials; many sporting events--and a long list of shows aired with no expectation by the networks of getting the highest possible rating.

Many are aired because networks and stations recognize a responsibility to offer public service broadcasts. Others, because the sponsor is seeking a specialized audience. For example, if you produced a high-quality camera, you'd probably want certain *types* of people to see your commercials. Thus you might sponsor, say, a travel program that might logically attract good camera prospects. In that case, audience *size* might well be less important to you.

"Well then... why have ratings at all?"

Simply because the networks and stations are in the business of entertainment. They couldn't survive very long without being responsive to people's likes and dislikes. You'll find all kinds of parallels to this: the theatre which keeps tabs on its box office receipts; the newspaper which closely follows circulation trends; the manufacturer who can tell from sales figures if his product is acceptable; and on a very small scale, the hostess who gives some thought to what her guests might like to have for dinner.

The act of tuning in and watching a TV program is, quite literally, a *vote* for that program. A vote in preference to other programs being aired at the same hour. Ratings represent a tally of these votes.

We've heard it said: "Never mind how the people vote--give them something else." Most people don't like the sound of that at all.

"Yes, but just because a program gets the most votes doesn't mean it's the best."

Of course not. Neither is the best candidate for office always elected. Neither does a jury always reach the right decision. Obviously quality and popularity don't necessarily go hand in hand.

Undoubtedly you've heard people say: "I never watch TV...it's all junk." But how many times have you heard the same person turn right around five minutes later and ask: "Did you see that great touchdown play (or whatever) last week?"

Quality is an elusive thing. One man's treasure is another man's trash, and so it will always be. Since there are just so many hours in a day for TV broadcasting, no one has yet come up with a proposal that makes as much sense as *counting the votes.*

"But what about diverse tastes?"

Anyone who thinks that diverse tastes are ignored on television should try this experiment. Take a week's listing of all TV programs in your area, and assign each program to one of the categories at right--keeping a count of the number in each category as you go along:

Naturally it might be impossible for you to see *your* favorite show at a time that was always convenient for you. But we think you will be surprised at the variety and depth of choice--every day and during virtually every hour--in your area.

In fact, this is the major reason why millions of homes now have two or more TV sets: so that families can take advantage of this wide choice in programming.

- Music
- Variety
- Sports
- Dramatic Shows
- Religious Programs
- Adventure Shows
- Educational
- Movie
- Serial Episodes
- Children's Shows
- News Programs
- Light Entertainment
- Current Events
- Not Classified

"Just what is a TV rating?"

The Nielsen Rating you may see reported in the newspaper is simply a *statistical estimate of the number of homes tuned to a program.* We repeat: it has nothing to do with program quality. For example, a rating of 20 for a network TV program means that 20% of U.S. TV homes are estimated to be tuned in to that program.

Since over 71 million U.S. households (97.5% of the total) now have TV sets, a rating of 20 means that an estimated 14.2 million TV households tuned in.

Rating x 71 Million = Number of Households Tuned

Note that when we described the rating, we used the words "*statistical estimate*". That's because a rating is subject to a margin of statistical error. It is based not on a count of all TV households, but on the count within a *sample* of TV households selected from *all* TV households. The findings within the sample are then "projected" to national totals.

"Why use a sample?"

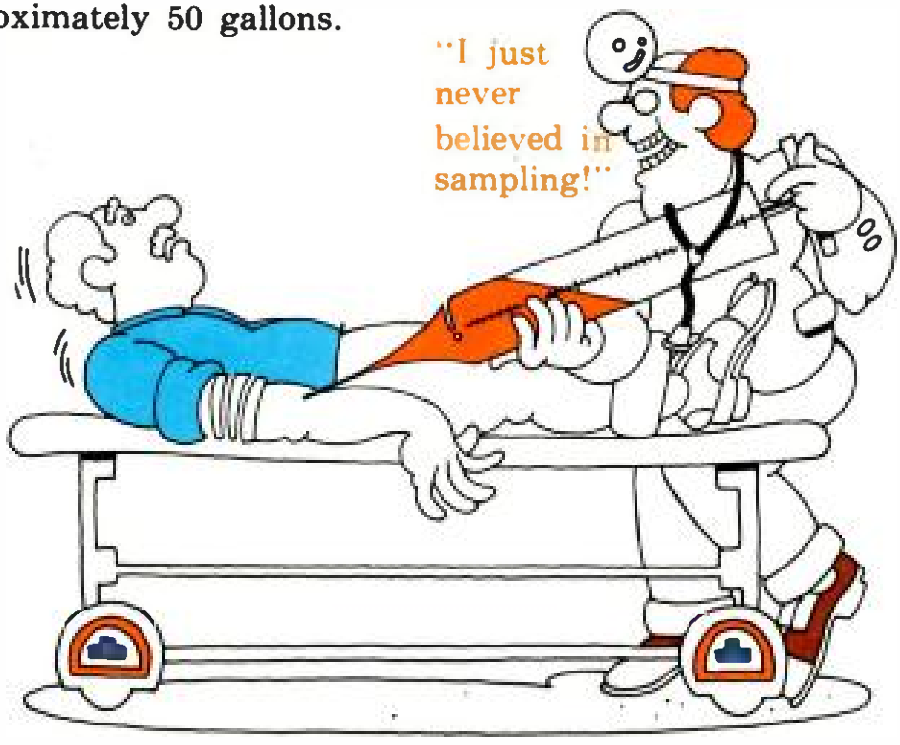
Simply because a complete count--program by program--of those 71 million TV homes would cost countless millions of dollars. Furthermore, any count--complete or from a sample--has to be taken regularly so that broadcasters and sponsors can stay in tune with people's likes and dislikes, which often change over time.

It is far more efficient to draw a sample, and then project the results.

You might go through the sampling process if, prior to a 500-mile automobile trip, you wanted to predict how much gasoline you'd use. Obviously it would be

wasteful and time-consuming to drive 500 miles to find out, so you might check your gasoline consumption over a trip of, say, 10 miles. The 10 miles is your "sample". Then, if you find that you've used a gallon of gasoline, by projection you'll know that in 500 miles you'll use approximately 50 gallons.

Statistics that we see on cost of living, retail sales, unemployment rates, wage rates and the like--all are based on samples. When the doctor takes a blood test, even people who are hopelessly skeptical about samples agree that there's no need to be pumped dry.



The noted statistician, Dr. W. Edwards Deming, says: "A sample is *not* a last resort, to be used when a complete investigation is impossible. Rather, it is the first resort: it is the answer to the question: 'What is the best way to do the job?' "

It often surprises people to learn that the U.S. Census Bureau uses samples to assess the accuracy of their figures. Even more surprising to many, of the 71 questions included in the 1970 Census, only 24 were asked of all households. The remaining 47 were asked among a sample of households. In short: sampling is a highly useful--and *completely valid*--technique.

"How does sampling work?"

Most expert statisticians could give you some very comprehensive answers to that question. Probably too comprehensive, in fact, for anyone but another expert statistician. So let's explain sampling by using a photograph of a pretty girl.

Picture No. 1 is composed of several hundred thousand dots. Let's consider these dots as our total population and draw several samples.

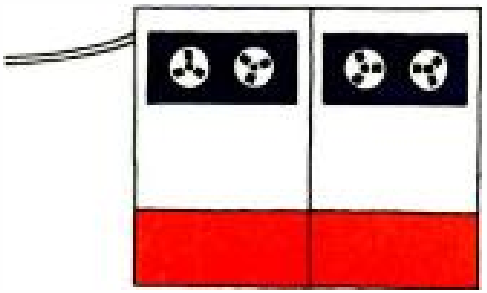
The three smaller pictures represent samples of 250, 1,000 and 2,000 dots. These samples represent a specific kind of sample design called "area probability sampling" because the black and white dots in the samples are distributed in proportion to their distribution in the original picture. (More black dots in the hair, more white dots in the face, etc.) Think of homes (which add up to our population) instead of dots (which add up the pictures), and you have the sampling method used by Nielsen for arriving at national TV ratings.

box, the SIA is placed in each sample household, out of sight and out of mind, where it is interconnected with up to four TV sets. (If a home has more than four sets, we install a second SIA). With its computer-like memory, the SIA automatically stores information--at 1-minute intervals--showing whether each set is on or off, and if on, to which channel it is tuned. (The minute-by-minute feature, even taken alone, provides valuable insight on people's programming likes and dislikes.)

The next step, of course, is to "retrieve" data stored in the SIA. This is done via a special telephone line connected to each sample household. (Even sample households with no regular telephone have their own SIA line.) Then, our computer periodically "interrogates" the SIA unit in each household. Typically, a full day's viewing information on up to four sets is automatically retrieved by Nielsen's Central Office Computer--in five seconds.

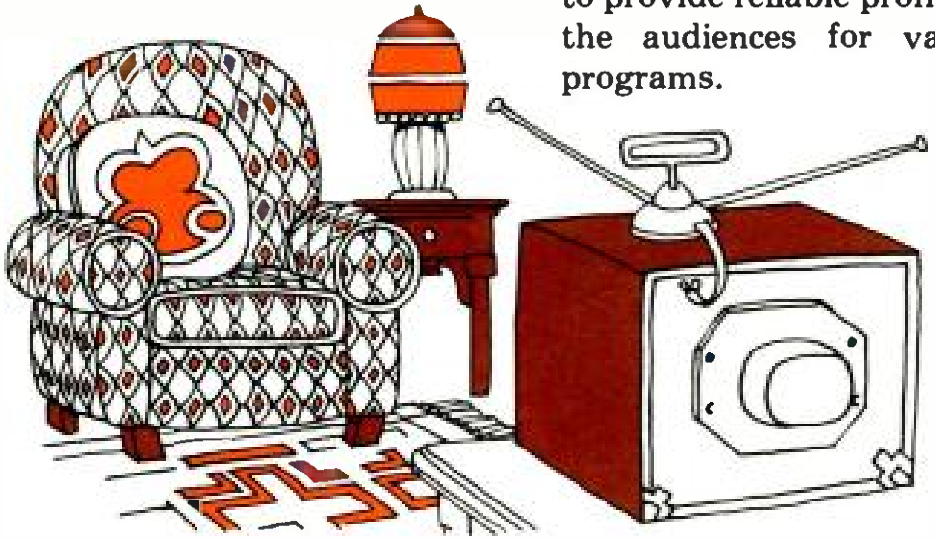
In effect, the channel selection knob on each set in each sample household is "wired in" to Nielsen computers so that we can determine exactly how those knobs are switched around, minute-by-minute over a 24-hour period. There is no guesswork--no memory--involved.

Nielsen Central Office Computer: Dunedin, Fla.



"Granting that your meter shows that the set is 'on': how can it measure WHO is watching... or if anyone is watching at all?"

It can't--and so we have developed a separate sample of National Audience Composition (NAC) households. Members of the NAC sample keep diaries: entering what programs were watched and which members of the family were in the audience. Since each family in the sample provides us with demographic information on such things as age and sex of family members, we are able to provide reliable profiles of the audiences for various programs.



The second part of the question was, of course, asked when our metered system was first introduced. Many thousands of dollars were spent on repeated telephone surveys to find the answer--and briefly, it is this. During daytime hours about 4% of the TV sets are on with no one viewing. The figure drops to 2% during prime evening time. In short, the numbers are insignificant.

"How do I become a member of the Nielsen sample?"

Strictly through chance--and your chance is roughly 1 in 60-thousand. A few words of explanation.

Naturally we'd like to accomodate people who offer to be in our sample--but doing so would violate basic laws of sampling practice. In a way, this would be like picking out more red beads because they were prettier or easier to see. The sample would immediately become biased.

Instead, we carefully draw our sample in a way that offers *every U. S. television household an equal chance of being selected.* And this is considerably more complicated than it sounds.

"Well then... how is the National Nielsen sample drawn?"

Using the U.S. Census Bureau's counts of all housing units in the nation, we randomly select about 1500 housing units, using scientific sampling procedures.* Housing units that are occupied and have a TV set are asked to become a part of our sample. The whole process takes thousands of man-hours of work, and costs literally hundreds of thousands of dollars.

Remember the 1,000-dot photograph on Page 11? Just as a random selection of black and white dots turned out to be representative of the whole photograph, the Nielsen sample now contains all types of households: city, town, farm; rich, poor, etc., each selected at random according to population density across the U.S.

In short, the Nielsen sample now provides what in effect is a scale model of all U. S. TV households.

*We're not trying to be mysterious. But, a detailed, step-by-step description of the procedures would take many pages and bore most people silly!

"Can the National Nielsen TV sample reflect other characteristics of the U.S. population?"

Several years ago, we compared car ownership in the Nielsen sample with officially reported car ownership, by make of car, throughout the U.S. The results show that in 6 cases, the Nielsen sample was "on the nose" - and was only 1% off in each of the other 6! Particularly impressive were the results on Cadillac and Chrysler - because the less frequently something happens (and ownership of these two car makes is less frequent), the better the sample has to be to serve reliably as a scale model of the whole.

Car Make	Actual % Registration*	% Registration in Nielsen Sample
Chevrolet	28	28
Pontiac	7	7
Buick	6	6
Oldsmobile	6	6
Cadillac	2	2
Chrysler	2	2
Ford	21	20
Plymouth	7	6
Dodge	4	5
American Motors	4	5
Mercury	4	3
Volkswagen	3	4
Others	7	6

*Source: Automotive News Almanac

"If my neighbor is in the Nielsen sample, does he represent me?"

No. A columnist once wrote: "Just because one Republican dentist in Ohio was in the Nielsen sample and watched GUNSMOKE, I don't believe all Republican dentists in Ohio watch GUNSMOKE." We don't believe it either, nor should you . . . any more than you'd believe that because the one dentist likes spinach, all Ohio dentists like spinach.

"How does Nielsen measure local audiences... say, in Pittsburgh or Little Rock?"

Since there are over 200 local TV markets, which require a total of nearly 100,000 sample households, obviously the cost of a metered system is prohibitive—except in the three largest markets, New York, Los Angeles and Chicago. In the others, we ask cooperating households to keep a television viewing diary for one week. After processing, the information is released in reports for each market. Aside from this difference, the same statistical laws and sampling principles apply in making these periodic local measurements.

In closing...

Nielsen ratings provide a reliable estimate of TV audience size and characteristics. In no way are they intended to measure program quality.

The rating techniques are based on sampling laws which are scientifically valid and which are used by most government bureaus in producing vitally important statistics for business and industry.

Ratings benefit the television audience - because they provide a barometer of people's likes and dislikes. Only by careful reading of this barometer can the television industry be *responsive* to 71 million television homes.

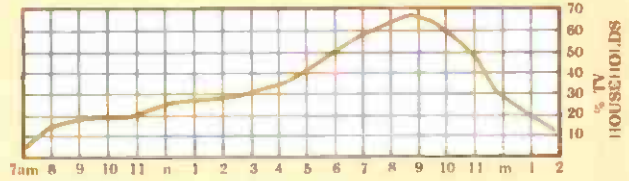
SOME INTERESTING FACTS ABOUT TELEVISION

Largest total audiences excluding 3-network coverage of special events:

1. World Series Baseball Game 1975
2. Super Bowl Football Game 1976
3. World Series Baseball Game 1975
4. Super Bowl Football Game 1975
5. Academy Awards 1976

Largest all-time audience for an event over its entire duration:
Apollo II, Moon Flight, July 20, 1969.

Peak viewing hours:
[See Chart]



Average daily viewing:
6 hours, 12 minutes

Percent of all households having 1 or more sets: 97.5%
Percent of all TV households having more than one set: 43%
Percent of TV households owning color sets: 74%

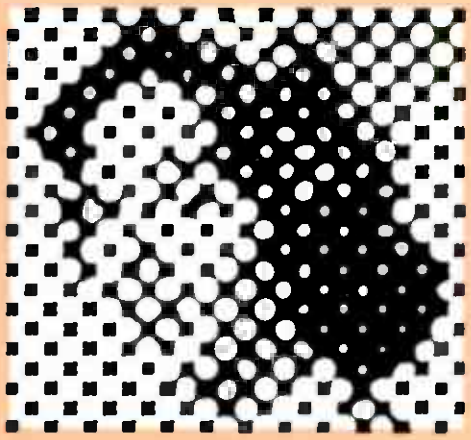
A. C. NIELSEN COMPANY
INTERNATIONAL HEADQUARTERS
NIELSEN PLAZA
NORTHBROOK, ILLINOIS 60062, U.S.A.

Now...if you put the book down and step back a few feet, you'll notice a very interesting thing as you look at these small pictures. Your eye will adjust to the overall image and stop trying to "read" the dots. See how the 250-dot sample provides a recognizable picture? Recognizable, yes, but obviously not much detail. So, let's take a look at the 1,000 dot sample...again from a few feet away.

Now we find that the girl is *very* recognizable; in fact, if all we wanted was a reliable idea of what she looked like, this sample would be quite adequate.

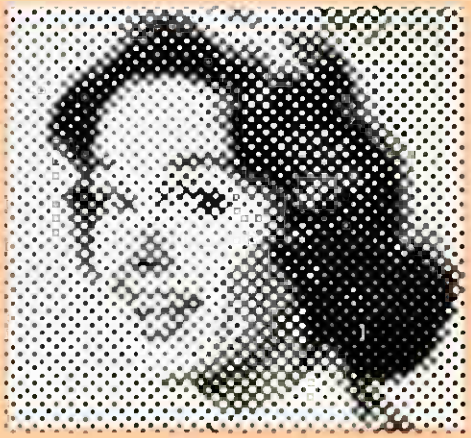
Another interesting thing about sampling. The 1,000-dot photograph is about twice as sharp as the 250-dot photograph because it has *four times* as many dots. And so it is with sampling: to double the accuracy, one must *quadruple* sample size.

These are some of the basic sampling laws followed in constructing Nielsen's 1200-home television sample. Just as the 1,000-dot photograph provides a reliable idea of what the girl looks like, the television industry regards the Nielsen sample as adequate in size to provide a reliable estimate of national TV viewing habits and trends.



250

1,000



2,000

"W-H-A-A-T... do you mean to say that with only 1,200 homes...?"

Certain questions--such as "Mommie, can I have a cookie?"--are obviously asked very often, but surely this question about our sample size would win the prize for frequency by a wide margin.

Most people seem to feel that a sample of 1,200 households may be adequate for a city of perhaps 100,000--but that a sample many times as large would be needed for a nation of 71 million TV households. This sounds logical, but it's wrong. Try the interesting experiment shown at right and you'll see why.

The real question should be: *"Does a 1200-household sample provide a sufficiently reliable estimate of the national TV audience?"* We could answer this by pointing out that the TV industry considers the sample adequate. (By "TV industry" we mean the advertisers and their agencies, networks, TV stations, program producers, etc.) But, we can also answer the question in a little more direct way.

Again without going into the intricacies of mathematical statistics (maybe you'll take our word for it, or you could ask a statistician), the following is factually true:

> If the Nielsen sample, constructed as it is, produces a rating of 20% for a number of programs, the TRUE rating lies somewhere between 18.7 and 21.3 for two out of three programs.

Most people agree that this is a rather small margin of error. But then, logically, many will say: "Aha...but what about the 1 in 3 times when the error might be larger?" They have forgotten

that TV ratings are measured and remeasured throughout the entire year. Rarely would a programming decision be made on just one ratings report; *repeated* measurements substantially reduce the range of statistical error that applies, as well as provide broadcasters with a vital sense of direction as to whether an audience is building or dropping off.

Try this interesting experiment. (Hypothetically--unless you happen to have 100,000 beads handy). Imagine 100,000 beads in a washtub; 30,000 red and 70,000 white. Mix thoroughly, then scoop out a sample of 1,000. Even before counting, you'll know that not all beads in your sample are red. Nor would you expect your sample to divide exactly at 300 red and 700 white.

As a matter of fact, the mathematical odds are about 20 to 1 that the count of red beads will be between 270 and 330--or 27% to 33% of the sample.

So, in short, you have now produced a "rating" of 30, plus or minus 3, with a 20 to 1 assurance of statistical reliability.

These basic sampling laws wouldn't change even if you drew your sample of 1,000 from 71 million beads instead of 100,000 -- assuming that the 71 million beads had the same ratio of red and white.

This is a simple demonstration of why a sample of 1,000 is just as adequate for a nation of 50-million households as for a city of 100,000.

"Yes...but people aren't beads!"

Of course not...but then, neither do we attempt to measure people in all their complexities. In some ways, measuring a television audience is as simple in principle as counting beads. We're asking questions such as: "Is the set on?" and "If on, is it tuned to channel A...or B...or C?". These questions are just as simple as asking if the bead is red or white. The answer in each case is a simple yes or no.

Compare this with political polling, where samples of people are asked how they'd

vote *today*. The problem here is that many in the sample will change their minds after being asked, and still others eventually won't vote at all. In other words, political polling requires *prediction*: finding out what *people* are *going* to do... which is far more complex than TV audience measurement. We don't measure what programs people *plan* to tune in or *expect* to tune in; only what they actually *did* tune in.

Despite these special difficulties, political polling has proved to be very accurate in recent years...almost always within a percentage point or so from the actual voting results.

"How do you know what programs people are watching in the sample households?"

The answer is simple--but it is based on an extraordinarily complex system of electronic data transmission and data processing.

Heart of this system is the Nielsen-designed Storage Instantaneous Audimeter (SIA). Smaller than a cigar