



### **Why does RAJAR use a Diary?**

In theory, measuring radio audiences should be fairly straightforward - I want to know what radio station you are listening to, when you are listening to it and for how long. That's it really. And I would like that information to be captured in a database alongside similar information from lots of other people so that I can analyse it and try to find patterns of listening that help programme makers to give different types of people the programmes they want to listen to at the times that they are available to listen .

Of course, this information is also useful for brands to advertise to the kinds of people who are most likely to be interested in their particular products. Without a measure of accountability to support this advertising, most of the UK's radio stations would cease to exist.

### **What Methods are available?**

There are many methods that can be used to capture information about people's listening, and this is where it gets interesting, because each one will produce a slightly different number. I could stop you in the street and ask you, I could phone you up, I could email you a link to an online survey, I could ask you to keep a diary, or get you to carry an electronic device that tracks your listening, I could even follow you around for a day keeping notes of what you listen to (with your permission of course, and yes – it has been done in the US!). With the growth of radio services being distributed and listened to over the internet, I could also count the number of connections to a radio station's computer server, and use that as a proxy for listening.

Out of all of these options, the UK uses a diary to measure radio audiences. There is one very good reason for this - a diary is easy to complete. That's really important as we need to capture listening behaviour from a cross-section of people, from children to centenarians. Admittedly the diary has been around for a long time, but that's a tribute to its versatility. It is used all over the world, and not just for measuring radio audiences, but also for TV viewing and readership, and it has even been used for measuring internet usage.

People taking part in RAJAR's survey are offered a choice of a paper or online version of the diary, and we're currently developing a version that works on a mobile phone or tablet. The advantages of the diary become more obvious if we explain the pros and cons of the alternatives.

### **Recall-based methods**

First up is what is known as the Recall Method. This is where I would spontaneously ask you (without prior warning) to tell me what you listened to today, or yesterday, or in the last week, or just what you usually listen to. I might stop you in the street, or ask you on the phone, or knock at your door, but the outcome is the same – I am asking you to remember your recent listening activity.

There are two issues with this method – you don't have too much time to think, so you're likely to forget some of your listening, especially if it was before yesterday, and you probably won't be able to be very accurate about the precise timing of your listening.

So how does this compare to our diary? Well, it's true that the diary also requires people to remember their listening, but they are warned in advance that they will need to actively remember. The difference is like me asking you how many times it rained in the last week, and asking you to make a note of every time it rains in the coming week. It is obvious which of those is likely to produce the most accurate information. The kind of remembering required to complete a diary is known as "pre-call" (warning you in advance that you will need to remember something) to distinguish it from "recall" (asking you to remember something after it has already happened).

In addition, the diary captures your listening in 15-minute chunks, so it gives me a much richer overview of your listening patterns. True recall-based methods are not so good at pinning listening down to individual quarter hours.

### **Electronic methods**

The next alternative to the diary is the audiometer – little electronic gizmos that "hear" what the ear can hear. These first appeared about 15 years ago and fall into two types – those that use audio-matching and those that use encoding.

When they are being carried or worn properly, audiometers register every exposure to a radio station, whether it is at home, in a car, at work, in a shop, passing by a building site, or even the neighbours having their radio on a bit too high! As such, audiometers can turn you into a listener to stations that you've never even heard of, or that you would never choose to listen to – that is how good they can be at "hearing".

### **Audio-Matching**

Audio-matching devices record a sample of the sound that you are exposed to, including any radio broadcasts, and they do this several times a minute. These recordings are converted into what is essentially a series of digital fingerprints. At exactly the same time as the samples are being taken, banks of computers record every available station and store the audio. Then the samples captured by the audiometer are compared to the original broadcasts and the degree to which they correspond is interpreted by a computer, which then determines the probability that the two are a match.

There is a lot of science and highly clever statistical input into this process, and despite the presence of lots of unrelated sounds in the fingerprints, it is surprisingly effective. The trouble with audio-matching audiometers is that they struggle to identify the station if two stations are playing the same thing at the same time – think chart-show, or simulcast news broadcast – and they can't tell the difference between different platforms (DAB versus DTV or online for example) which is important in countries (like the UK) where broadcasters pay to be carried on different digital platforms.

### **Encoding**

Audiometers that use encoding work in quite a different way to audio-matching. The stations that participate in the research need to broadcast an inaudible “code” that the human ear cannot discern – it’s like an echo that is so close to the original sound that we simply can’t hear it, but the audiometer can. This code contains a reference to the ID of the station, the date and time, and different platforms can use different codes so they can be distinguished separately.

These audiometers listen out constantly for the codes and store whatever they find. Obviously this method requires codes to be inserted at all of the radio stations, which can be expensive. And adding in the other hardware costs such as the meters, rechargers or modems, can amount to a hefty bill.

### **Issues With Audiometers**

Apart from the expense, there can be other problems with audiometers. A couple of good examples are Format Bias and Compliance Issues. All that Format Bias means is that different types of station can be harder (or easier) than others to detect. With audio-matching, it can be easier to match speech-based stations than music stations because speech “fingerprints” are sharper and better defined. But lowering the threshold to improve music-based station identification can actually reduce the accuracy of speech station measurement. With encoding, the codes need noise to hide in, which is a lot easier with rock music than classical music. Technology has improved since RAJAR’s original audiometer tests; however, when evaluating an audiometer system, it is important to check whether all stations are being measured equally well.

Compliance is a more persistent issue. In order to capture the best possible account of people’s listening, it is important that they carry the device around with them. If they forget it, or are simply too busy to bother, then any listening taking place will go unrecorded.

When RAJAR tested audiometers a few years ago, this was a significant issue. We found that people often struggled to comply at breakfast time because they were operating to a deadline (train or bus to catch, children to get off to school etc.). Unfortunately, in the UK, breakfast time is the peak time for radio and a sizable chunk of their listening went un-captured, which of course, meant that it was lost forever. This is another place where the diary scores against the audiometer – listening can be recorded retrospectively and will not get lost.

The Compliance issue can be overcome but it means turning the audiometer into a device that has real relevance to the people carrying it, so that they don’t want to put it down. The Swiss have very cleverly inserted audio-matching technology into a wristwatch, which people wear instead of their regular watch, and means that they are much more likely to remember to take it with them. Of course, this leads to an expensive investment in technology and equipment.

More recently, Ipsos has been testing a system which transforms a smartphone into an audiometer, using open-market solutions, and which looks quite promising. So promising in fact, that RAJAR has elected to invest in a year-long trial of the device, primarily to learn more about long-term listening.

Apart from Switzerland, audio-matching is also used in Cyprus, while encoding is in use in the largest cities in the US, and in Canada. Part of the radio measurement in some Scandinavian countries is also carried out using this system.

## **Counting Internet Connections**

With recent advances in both streaming quality and the availability of affordable devices, there has been a big increase in the number of people listening to radio stations online, on a desktop or laptop PC, or through a mobile device. Obviously somewhere in the process there is a computer that registers every time a device has connected to the radio station, and this has given rise to the possibility that this information could be used to estimate the number of listeners.

There is some truth in this, but it is also laden with question marks. The fact that a computer has connected to another computer does not mean that anyone is listening for the duration of the connection. Or it could be that many people are listening. And if anyone is listening, who are they? And what about the people who don't listen to the radio online – can we realistically use online listeners' data to in deduce the listening habits of people who aren't online? In all probability the answer is “no” since research tells us that these people are likely to have different lifestyles, and consequently different listening habits.

## **Summary**

Going back to the point that I made earlier about different methods producing different numbers, here is a summary of what they each measure:

- Recall-based methods record the most memorable recent listening that people can remember.
- Audiometers record what people are exposed to regardless of whether they notice it or not.
- Computers count computer connections, not listening.

Set against these alternatives, RAJAR believes that the diary system, with its simple concept of “pre-call” comes closest to capturing which radio stations people are actually “listening” to. It's also inclusive and affordable, and it copes better than any other methodology with the highly common frailty that plagues all research methods involving human beings – forgetfulness!

It is inevitable that the UK will eventually move to or incorporate some form of electronic measurement, but that won't happen until we find a system that is at least as inclusive, and as affordable, and which represents an improvement on what we already have. In the meantime, we will continue to develop and adapt our human-friendly diary.