



BARB 2010 Service

BARB Reference Manual

5. Meter Functionality

VERSION 1.3

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Meter Functionality

5.1 Introduction

This document outlines the functionality of the Kantar 5000 Series PeopleMeter that BARB have commissioned for the 2010 BARB Service. It outlines the way the meter interacts with panel members and guests, the methods used for channel identification and describes some other general features of the meter.

5.2 The Kantar 5000-Series Modular PeopleMeter

Launched in the year 2000, the Kantar 5000-Series Modular PeopleMeter was developed from experience gained over some 25 years of electronic audience measurement. One of the meter's main design aims is its modular interconnectivity and flexibility.

The Kantar 5000-Series PeopleMeter is designed to blend in with other items of consumer electronic equipment and to be as acceptable as possible to the maximum number of prospective panel members. The meter is sufficiently compact (23cm x 6cm x 12cm) that it may be moved around with transportable TV sets as small as 30cm screen size.



Picture 1 Kantar 5000 – Series People Meter

5.3 Interaction with Panel Members and Guests

The interaction between panel member and their guests and the 5000-Series PeopleMeter has been designed to be as simple and unobtrusive as possible. A dedicated

remote-control handset and high-resolution meter display ensure that normal TV viewing behaviour is unaffected, with the meter connected to the panel members viewing equipment.

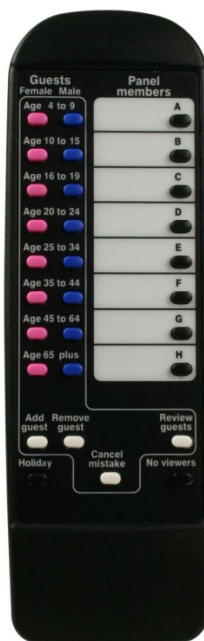
Panel members are assumed to be willing participants in the measurement process. The meter's task is to help them achieve this by gentle reminders and prompts.

The 5000-Series PeopleMeter is equipped with a high-resolution graphics display allowing the correct representation of all languages, not just those based on the Roman alphabet. BARB have chosen to use English and Welsh languages.

5.3.1 Panel member entry

Panel members are each allocated a dedicated button on the remote control handset, alongside which their name is written. They register their presence by pressing the button once, whereupon they are greeted by name on the meter's display. This naturally draws their attention to any erroneous key press – people are much attuned to the mention of their name. Their continued presence is indicated on the meter display.

On leaving the room they press their button again, a 'goodbye' message is briefly shown and their entry is cleared from the display.



Picture 2 Kantar 5000-Series People Meter Handset

5.3.2 Guest entry

Each guest, or often the panel member on their behalf, presses the appropriate button according to their age group and sex. Pink buttons for females, blue buttons for males, and up to eight age groups make this very intuitive. The meter then displays the number of guests in that demographic category – a further button-press then adds or removes an individual, as appropriate.

Regular guests can have a button designated to them and subsequently identify themselves in the same way as household members.

5.3.3 Nil-viewer button and reminders

The meter display will prompt, by means of a flashing message, if the TV is on but no viewers have been registered for a period. Usually this is because viewers have forgotten to log in, but sometimes is legitimate. Often people leave the TV on when they leave the room, or when they are out. In these situations they can press the 'No Viewers' button to inform the research company that the reported situation is indeed correct.

5.3.4 Periodic reminder

A pre-determined time after the last button-press, the meter will prompt 'Check viewers' and, if appropriate, 'Any guests? This is intended to draw attention to the viewers currently registered – any discrepancy can then be corrected. If the display shows the viewers are correctly registered, no action is necessary. Again, panel members are assumed to be compliant, and are simply reminded to check the display in case someone has forgotten to press their button.

5.3.5 Holidays

in order to avoid needless compliance calls regarding nil viewing, panel members are asked to indicate when they are about to go on holiday. They do this by simply pressing the holiday button on the meter's remote control after switching off the TV. After pressing the holiday button, the meter will display "On Holiday OK", press the holiday button again and the meter will display "Have a nice Holiday". This condition is cancelled the first time any TV in the home is switched on when they return. Putting one meter to holiday status will provide a statement for all the meters (whole home).

5.4 Channel identification techniques

As explained above, a major strength of the Kantar 5000-Series PeopleMeter is its modular form of construction, allowing the selection of the channel identification technique, or combination of techniques, most appropriate for the circumstances obtaining within a particular country, or indeed a particular home.

Over the period of BARB's 2010 contract methods of TV reception will be very varied. Analogue reception will be phased out during the period, being replaced by digital reception on multiple platforms. TV consumption will also be placeshifted and timeshifted using a variety of techniques and devices, some of which have not yet been invented.

So there is a need for a "universal" channel identification technique to underpin BARB's measurement service – one which will work irrespective of the means of delivery of television to the viewer. Kantar achieves this by measuring the audio, and for the BARB 2010 service Kantar's Enhanced Audio Matching will be used as the base channel identification technique. This will be aided by a selection of further channel identification techniques, each of which have particular advantages in specific circumstances. These techniques include SI Data, Transmitted Audio Codes and the Digital Index Codes. These techniques are described below.

5.4.1 Enhanced Audio Matching

In the home, the audio from the TV set is continually sampled and those samples stored in the meter. Meanwhile, similar samples of all the TV channels of interest are taken continuously at one or more central locations, known as reference sites. These samples are collected together at the research company offices and stored. Once the data from the home is retrieved during the nightly telephone contact, they are then compared with the reference samples in order to identify the audio material from the TV.

The sampling scheme and processing software have been designed to facilitate matching of time-shifted material. This is essential in order to deal with the rapidly growing number of Personal Video Recorders (PVRs) in use. PVR users are likely to watch substantial amounts of timeshifted television, even if often they only time-shift by a few minutes.

The audio matching technique is applicable to both analogue and digital transmissions, and retains the advantage of independence from the broadcasters and the receiver manufacturers. It is also applicable to radio listening, in particular radio programmes delivered via the TV receiver.

5.4.2 SI data

All digital transmissions carry Service Information, allowing the receiver to extract from a multiplex of several services only those data packets associated with the service the viewer has chosen to watch. This information contains the identity of the Original Network, the Transport Stream used to deliver the material and the individual Service being decoded.

Software in the digital receiver can pass this information direct to the PeopleMeter, giving direct, accurate knowledge of the TV channel or interactive service being received.

This technique requires the collaboration of the digital receiver manufacturer and/or his software supplier, it is most suited to situations where the specification and marketing of receivers is controlled by a single organisation. It may be less suitable for environments where there is a free market for digital set top boxes, though broadcasters may be able to persuade manufacturers to co-operate.

In the UK this technique is used for BSkyB satellite receivers.

5.4.3 Transmitted audio codes

Kantar licences this technique from Arbitron Inc of the USA. Developed originally for use with Arbitron's Portable People Meter (PPM), it is a method of embedding within the audio signal of a TV or radio station a code that is undetectable by the human ear. The code is retrieved by a decoder module built into the Kantar 5000-Series PeopleMeter.

- The technique uses the principle of psycho-acoustic masking to render the codes inaudible – put simply, each element of the code is transmitted slightly quieter than, and shortly after, similar sounds within the audio signal. The ear is insensitive to sounds of this nature, thus the code is rendered inaudible.
- The encoding technique used is very robust, surviving all digital encoding, compression and recording techniques in use, including transmission via the Internet.
- Compared to a matching technique, transmitted audio codes allow greater differentiation of delivery platform. Stations broadcast by more than one means, for example by terrestrial transmitter and by cable, may, if desired, encode these signals differently, thus allowing the method of reception to be identified directly and reported.
- Unlike audiomatching systems, the transmitted audio code technique is able to distinguish between simulcast programmes across different stations.

5.4.4 Digital Index

This technology is able to monitor the use of interactive services on digital broadcasts via embedded data (in the form a barcode) within the visible part of each interactive page. In the majority of cases, where TV sets overscan, the barcode will not be visible to the viewer.

A module installed in the Kantar 5000-Series Modular PeopleMeter designed to deal with the channel-change data is used to decode the 'Digital Index'

5.5 Other Features of the Meter

In addition to facilities for capturing panel member presence and identification of the channel viewed, there are some further features of the meter.

5.5.1 Input Device Identification

It is often necessary to determine the use of peripheral devices associated with a television set. This may be in order report on other uses of television such as DVD playback or video games, or to identify the platform in use by noting the nature of the device in use – a satellite receiver, for example. Note that in this way it would be possible to distinguish between platforms even when the channel carries the same transmitted audio code on each platform.

The 5000-Series PeopleMeter is fitted with a module that, by a process of elimination, determines which input device is producing audio similar to that being reproduced by the TV set. Normally this process makes use of audio signals available at the various SCART inputs and outputs of the TV set.

5.5.2 Communication between home and central computer

5000-Series PeopleMeters may be fitted with a conventional modem connected to the existing household telephone line, or a GSM modem connected to the cellular (mobile) telephone network. Calls may be direct to the central computer or via a local call to an Internet Service Provider (ISP) where this is more economic. The GSM modem may make direct data calls or use GPRS (a packet-based, Internet-like protocol) for economy.

The central computer may be equipped with a bank of modems connected to a multi-line hunting group served by a single toll-free telephone number. This avoids the panel member being charged for the calls.

Alternatively, the computer may be linked to the Internet for calls routed via an ISP or transmitted by GPRS.

Regardless of the communications link chosen, all data are again fully protected by Cyclic Redundancy Checks and re-transmissions as necessary to ensure no data are lost or corrupted.

5.5.3 Conventional telephone modem

This may share the panel member's domestic telephone line. Calls are made during a pre-determined time period – typically two hours – in the early hours of each morning. Within that period calls are made at randomised times, repeated as necessary until successful. This approach is designed to optimise the loading on the central telephone

lines and computers whilst complying with telephone company rules on frequency of call attempts.

If, at the end of the period, no contact with the computer has been made, then the meter will dial a second, back-up number. Usually this would be of a computer at a different location, thus protecting against telephone exchange faults and other faults impacting the ability of transferring data.

Before making a call the meter first checks that the line is not in use by the panel member. The technique used is designed not to disturb any on-going call, and in particular not to disrupt any Internet session the panel member may be engaged in. (Such calls are more easily disrupted than normal voice calls.)

If the panel member attempts to make a call during the brief period the line is in use by the meter, the meter will sense the telephone being lifted and drop the line.

Parameters, which may be downloaded to the meter during the normal overnight contact, control the time period during which calls are made and the telephone number(s) to be dialled. New numbers may be downloaded in advance, and a changeover date given. This allows for situations where, for example, the telephone company changes the numbers in a particular region of the country.

5.5.4 GSM/GPRS Modem

In the majority of panel households a GSM modem is installed in the meter. GPRS data communication is used; this is a packet-based protocol, analogous to an always-on Internet connection. The Kantar 5000-Series meter disables the functionality outside the polling window to reduce any possibility of cellular interface with Panel member equipment.

5.5.5 Timekeeping

All 5000-Series PeopleMeters contain an accurate quartz-controlled clock, powered by a lithium battery with nominal ten-year life. The master meter's clock is checked during each overnight contact with the base computer and corrected as necessary. Subsequently slave meters are themselves checked and corrected by the master meter.

The central computers obtain their time from national or international time standard servers either via the Internet or by direct telephone call shortly before the meters are due to start calling in. The computer will not correct a meter's clock unless it has recently received a time update from such a standard source.

Precautions are taken to avoid supplying meters with the incorrect time in the event of an error in the time standard – this is surprisingly common, particularly around the time when daylight saving time comes into force. Meter clock changes of more than a few seconds are prevented without manual intervention.