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## Forensic Radio Surveys for Cell Site Analysis

## 1.1 Cell Site Analysis

Cell site analysis attempts to provide evidence of where a mobile phone may have been located when certain significant calls were made.

Mobile phone networks consist of a large number of radio 'cells', each of which covers a limited geographical area. Each cell is assigned a unique 'Cell ID', which is captured in the billing record (CDR or Call Detail Record) when calls are made.

Network operators are able, under tight regulatory guidelines, to provide details of the calls made by 'target' phones and can also provide details of the locations of the cells used by those phones.

Cell site analysis is designed to enable an investigator to determine whether calls made at or around the time of an incident or offence used cells that are located near the location of that offence.

## 1.2 Forensic Radio Surveying

Forensic radio surveys are designed to provide solid evidence to back up the assumptions made by investigators and cell site analysts.

Forensic radio survey equipment captures details of the cells that can be detected at a location and can indicate which cells would be selected for use by a phone being used at those locations.

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Forensic radio survey results can be used to prove that particular cells provide coverage at significant locations and can therefore indicate whether it is possible for a phone using those cells to have been at or near those locations when particular calls were made.

The only totally definite conclusion that can be drawn from cell site analysis is that the use of a particular cell by a target phone means that the phone must have been within the serving coverage area of that cell at the time.

Forensic radio surveys can set approximate limits to the area within which the target phone must have been located. This type of evidence can be very useful when attempting to prove or disprove an alibi or other statement.

Overall, forensic radio surveys add empirical rigour to an area of investigation that would otherwise fall prey to assumptions and wishful thinking.

Cell site analysis, based on a combination of CDR, cell location details and forensic radio survey results, can provide compelling evidence to support the allegations made by investigators.