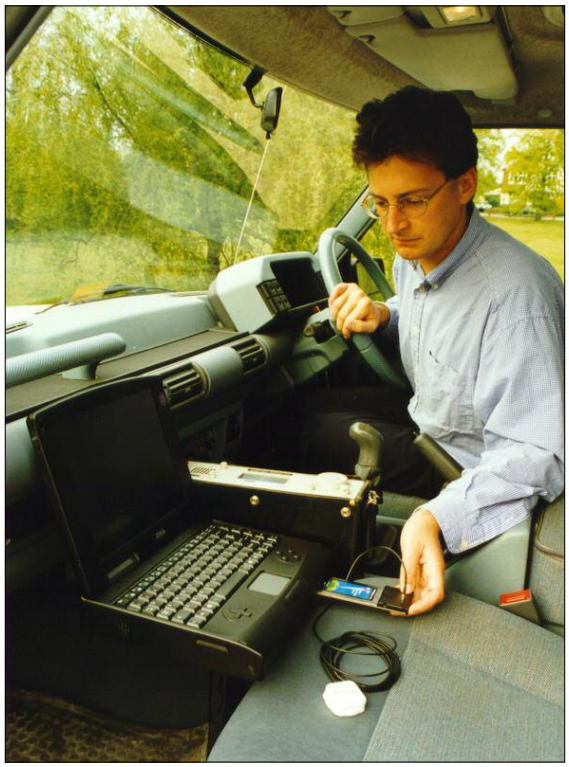
Libra™

RSI

For surveying PMR, paging, broadcast and cellular radio coverage



Key features

- **based on widely used GPR or Griffin receiver**
- **make statistically valid measurements**
- **no wheel transducer required**
- **fully automatic surveying**
- **powerful analysis functionality**
- **validate Service Level Agreements**

What is Libra?

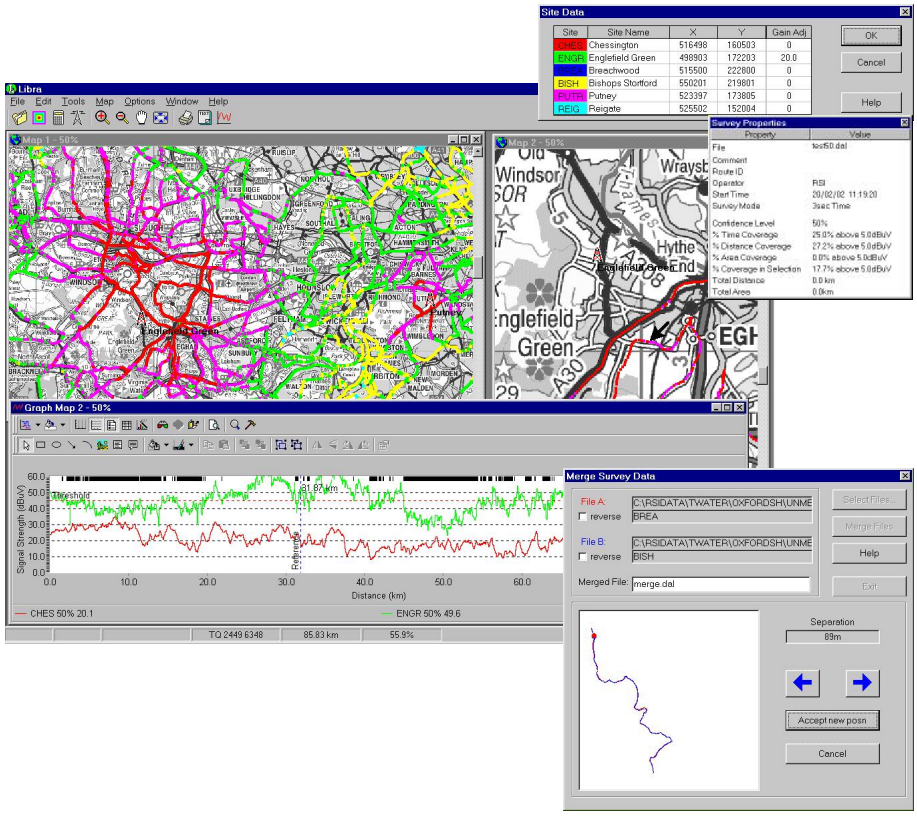
Libra provides the system planner with the ability to survey radio coverage simply and accurately. Libra is based on a Chase GPR calibrated receiver and fits any vehicle without modification or additional wheel transducer.

It is suitable for use by one operator or driver with any warnings being given audibly, leaving the driver to concentrate on driving. Libra will survey up to 5 frequencies simultaneously and still produce statistically valid coverage data.

What makes Libra really unique is the powerful analysis software that allows the user to produce maps showing composite system coverage or most likely base using any combination of sites whilst still in the field.

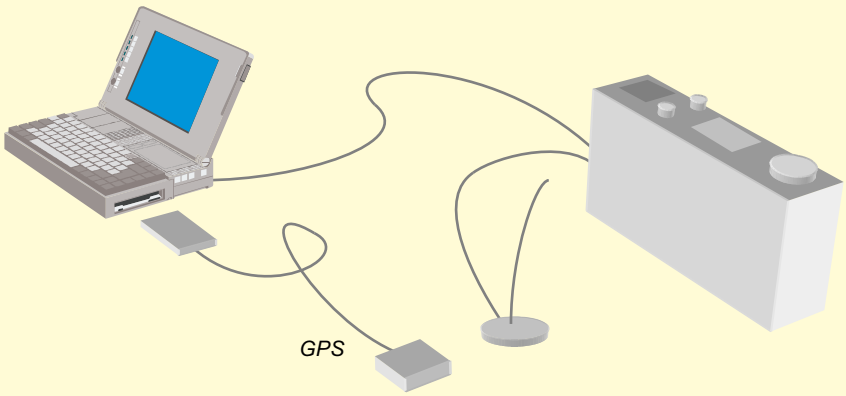
Data collected using Libra can be exported directly to prediction tools for correlation.

Libra is the 7th sign of the zodiac and represented by the scales - suitably symbolising measurement with accuracy.



Radio Systems Information Ltd., Northumberland House, Drake Avenue, Staines, Middx TW18 2AP, UK
Tel:+44 (0)1784 458223, Fax: +44 (0)1784 442416, Email: sales@rsi-uk.com, Web: www.rsi-uk.com

Libra configuration



How does Libra work?

Libra uses the concept of the sample gap to produce statistically valid and repeatable measurements. Over this distance (50m is often used) Libra logs all signal samples from the receiver and at the end of the distance calculates the mathematically correct % confidence levels from the raw data for each frequency.

The software judges the distance travelled 20 times per second using a technique of estimation and interpolation - this allows a measurement of sample gap distance derived from GPS accurate to better than 1m (even using standard GPS) and means that, unlike other survey tools, no wheel transducer is required.

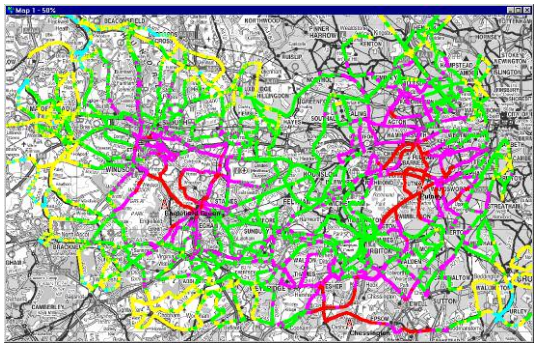
The fast sampling rate of the receiver ensures repeatable results, even when surveying more than one frequency.

What information does Libra provide?

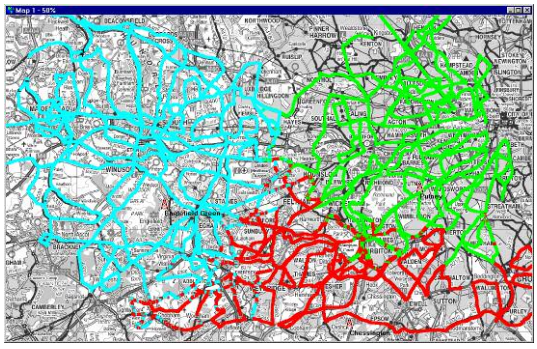
Survey data can be presented as maps or graphs or exported in standard file formats for further analysis. Maps may be either be displayed on bitmap backgrounds or as a scale preview suitable for printing and physically overlaying on paper maps. The map projection is configurable for all standard mapping systems allowing world-wide use of Libra.

One of the fundamental principles of Libra operation is the use of site names rather than frequencies to identify sets of survey data. The real benefit of this comes during the analysis when complete sets of data for each site can be included or excluded from the analysis without having to worry about the actual survey frequency. Maps may show either coverage of a single site or composite coverage from any combination of sites allowing powerful "what if…?" analysis of the survey data. In addition signal values for individual sites may be adjusted to show, for example, what additional transmit power is needed to fill in coverage.

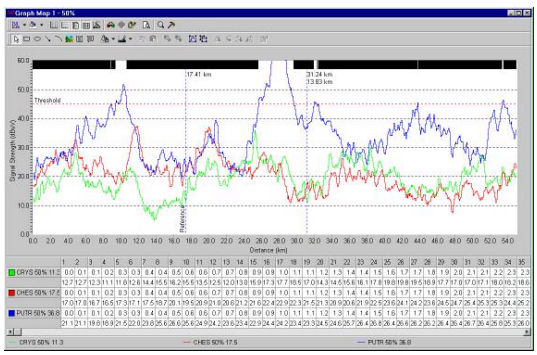
Statistical analysis of the survey data allows objective measurements of coverage for proving system design. Data may be exported in a number of different formats suitable for correlation with prediction tools.



Show composite coverage of many sites with true merging of data.



Show Most Likely Base in a network to highlight base station boundaries - useful for investigating traffic distribution across the network.



Libra graph is powerful and configurable to help interpret survey data.

Specifications

Minimum PC requirements
Pentium 200MHz Notebook, SVGA display, 32MB RAM, Windows 95/98, NT4, ME, 2000, XP

Receiver
GPR or Griffin calibrated measuring receiver. Other receivers may be supported on request.

Positioning
GPS PCMCIA card (powered from PC) or external NMEA source with optional dead-reckoning backup using gyro-compass.

Survey Functionality
- max number of survey frequencies: 5 for GPR, 150 for Griffin
- up to 3 % levels calculated for each frequency
- time or distance sampling modes
- fast sampling and true calculation of % levels ensures statistically valid measurements meet Lee criteria
- survey progress displayed in real-time on map & graph
- sample gap distance derived from GPS accurate to better than 1m
- if GPS is lost then surveying continues assuming vehicle is moving at same speed
- Time sampling mode may be used for channel activity monitoring

Analysis Functionality
- select any combination of sites and routes to be analysed
- show coverage from multiple sites as composite or most likely base
- 5 signal strength threshold ranges with configurable colours
- display markers at site locations
- merge data files for the same route to correctly show composite coverage (essential when re-surveying areas that have been previously surveyed)
- map projection configurable for anywhere in the world
- display multiple maps each of which may be zoomed or panned independently
- display data as maps with bitmap backgrounds or as scale maps suitable for printing and superimposing on paper maps
- display data as graphs of distance travelled, or against time
- include simple vector graphics on map
- Statistical analysis for % coverage by distance, % coverage by time, % coverage by area
- export data for further analysis or correlation with prediction tool

Radio Systems Information Ltd., Northumberland House, Drake Avenue, Staines, Middx TW18 2AP, UK
Tel:+44 (0)1784 458223, Fax: +44 (0)1784 442416, Email: sales@rsi-uk.com, Web: www.rsi-uk.com