

## MEASUREMENT SERVICES

# Measuring QoE, QoS and coverage of wireless networks

Whatever the technology it is only as good as the coverage it provides to the target customer or service. During an initial project design, procurement and later installation a network of any sort will have been characterised to cover a certain area and group of users.

Does your network provide the required quality of service, experience and coverage as expected?

Whether it is validating a new installation or auditing coverage of an existing network, Erkmar has the experience and capabilities to undertake these measurements.

There are differing ways to undertake measurements depending on the technology and requirements. With our experience supporting regulators and network operators, you can be assured that the methodologies and processes we use are industry standards and relevant to the project requirements.

Coupled with our field services and planning consultancy, we can provide you with a complete package to optimise your network and assure your users of its coverage and quality.



## About Erkmar

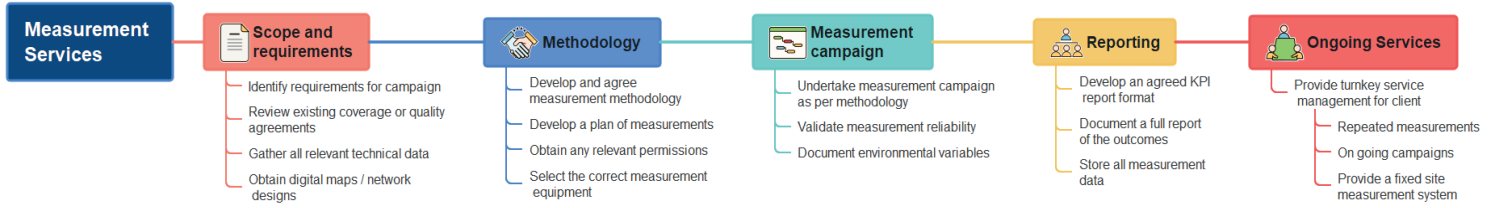
Erkmar is a UK-based global consultancy business with an Australian subsidiary. We specialise in supporting our clients in telecom, spectrum and technology needs.

We have delivered assignments throughout the world for the last 14 years. Some examples of our services:-

- Technology strategy development
- Business case development
- Technical procurement specification creation
- Procurement process management
- Validation of vendor proposals against our client's requirement
- Project/program management of installations
- Post-implementation validation of project deliverables
- Wireless network coverage mapping and validation
- Quality of experience / Quality of coverage measurement and reporting
- Business process design and validation
- Economic evaluation

We have worked extensively with governments, regulators, public organisations and private companies in all the above areas.

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## Measurement services

Validating the quality of service (QoS), quality of experience (QoE) and coverage of your network is essential. Whether you are a provider wanting to assure your customers of the level of service they receive or an operator wanting to validate your network performance, Erkmar has the experience to help you.

Based on our engineers' experience in regulatory authorities, we know well the issues surrounding the reliability of measurements taken in the field and the need to assure their validity and repeatability.

We have undertaken national and local measurement campaigns for National Regulators and commercial organisations worldwide. We have provided measurement data for 4G LTE, 5G NR, IoT, TV broadcast and other more specialised services.

### Scope and Requirements

It is essential to establish a clear starting point before embarking on a measurement campaign. This can be either the contractual provisions in a new network or previous coverage expectations in established systems. Many networks have specific network adjustments to gain the best capabilities so these need to be reviewed and documented at this stage.

### Methodology

Most times we have a set of established methodologies developed from previous studies and based on ITU, GSMA or other relevant international standards. A documented methodology relevant to your campaign is essential as part of the overall reporting and assurance of the quality of our service.

### Measurement Campaign

We undertake the measurements be they walk test, drive test, or fixed site measurements as per the methodology.

The specific equipment used depends on the technology and requirements, but we utilise the latest semi-automated equipment from leading suppliers as required. We can also use crowd-sourced approaches, although we generally avoid this.

### Reporting

We develop a bespoke reporting format to your requirements. The automated test equipment outputs a range of diagrammatic KPIs and data. From this, we develop a detailed report to navigate the complexity and provide a clear explanation.

### Ongoing Services

Some organisations require ongoing measurement campaigns over time, and some an approach where fixed nodes are used to constantly monitor QoS. QoE etc at key locations.

Erkmar, your trusted field engineers for measurement campaigns