

## Case Study: A Major European Operator sees dramatic improvement from x-Parameters for GSM

### Situation:

The carrier operated a 300-sector network covering the downtown area of a large capital city of a central European country. The network was comprised of dual-band cells using dynamic power control, frequency hopping, and half-rate codecs. Approximately one third of the sectors were microcell sectors situated in high traffic areas under and between macro cell sectors.

At the time Optimi arrived, the network carried over 90 Erlangs per square kilometer and had negligible call blocking and less than 0.9% dropped call rate. Since this was the financial heart of the capital city, the operator had taken extra care to ensure the highest performance in the area, but their manual optimization techniques would soon be unable to keep up with the rapidly changing network needs.

### Solution:

Optimi demonstrated the capabilities of the x-Parameters GSM solution, using an algorithm to automatically optimize parameters related to voice quality, half rate usage, handover failures, dropped calls and blocked calls.

After a short 2-week benchmarking exercise, Optimi's x-Parameters collected data nightly from the network OSS and computed incremental improvements to parameters in the 300-sector network. Each day the improved parameters were loaded into the system before busy hour, and the OSS data collection process repeated. The automatic optimization continued for 4 weeks.

### Results:

At the end of the 4 week period, x-Parameters delivered improvements across all critical performance measures.

- 50% reduction in half-rate usage
- 40% reduction in total handovers
- 40% reduction in handovers triggered by downlink quality problems
- 25% reduction in handovers triggered by uplink quality problems
- 12% reduction in voice quality problems in the uplink
- 8% reduction in handover failures
- 5% reduction in voice quality problems in the downlink

To be sure that these improvements were totally the result of x-Parameters, the operator changed the operating parameters of the 300-sector network back to the parameters in place during the benchmarking period. The network performance quickly reverted back to previous levels, levels now unacceptable to the operator.