

# VOICE BENCHMARKING

GWS is the largest independent provider of competitive benchmarking for the wireless industry.



The wireless industry is filled with competitive challenges. Operators compete for the loyalty of their customers through network investment and for new subscribers with their advertising. Markets compete for resources from corporate to maintain and improve their networks. Engineers compete to provide more coverage and higher quality service than the other networks in their territory. Infrastructure vendors compete for the chance to provide equipment to operators who are launching new technologies. Key to all of the many different types of competition is benchmarking—the ability to measure performance and determine success.

Benchmarking of competitive wireless network quality is the core business of Global Wireless Solutions, Inc. (GWS). The largest independent provider of competitive benchmarking for the wireless industry, GWS brings a complete understanding of the key aspects of multi-technology test equipment, management of a large collection fleet, data quality assurance and data reporting intelligence to this industry leading offering.

GWS' comprehensive Voice Benchmarking services have been successfully used by operators to evaluate competitive performance against their competition; to validate performance before and after infrastructure equipment swap outs; to provide support to quality claims used in marketing campaigns; to measure outsourcing SLAs, and to direct network improvement investment. GWS has supported regulators using benchmarking data to confirm operator performance on license requirements and identify unserved or underserved areas and has helped infrastructure vendors to test new technology rollouts. GWS is unmatched in experience and capacity to provide a customized service to meet any benchmarking need.

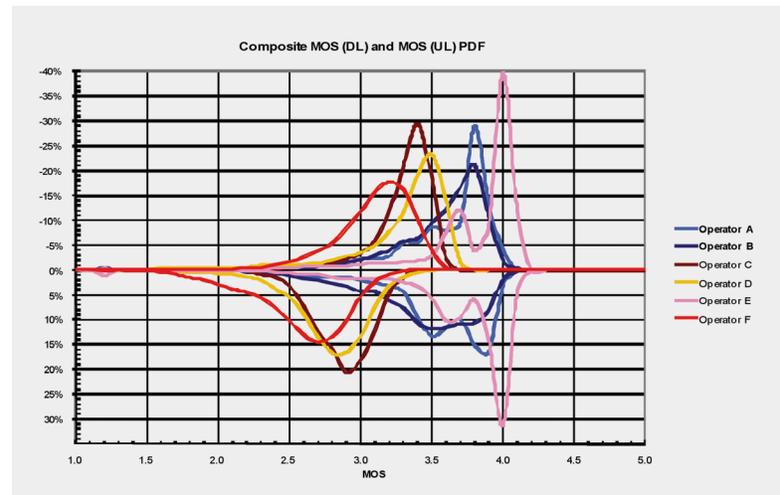
GWS' comprehensive Voice Benchmarking reports provide competitive analysis utilizing key parameters that are independent of technology including:

**Accessibility:** A metric representing the user's ability to successfully initiate a call.

**Retainability:** A metric defined as the percentage of calls that successfully terminated out of the total number of successful initiations.

**Reliability Score:** An overall network score taking into account the Accessibility and Retainability results.

**Voice Quality:** A measurement representing the user's perception of the quality of speech on a network.



GWS Voice Benchmarking reports provide extensive analysis of collected, multi operator data including numerous figures, charts and maps such as:

## Figures and charts

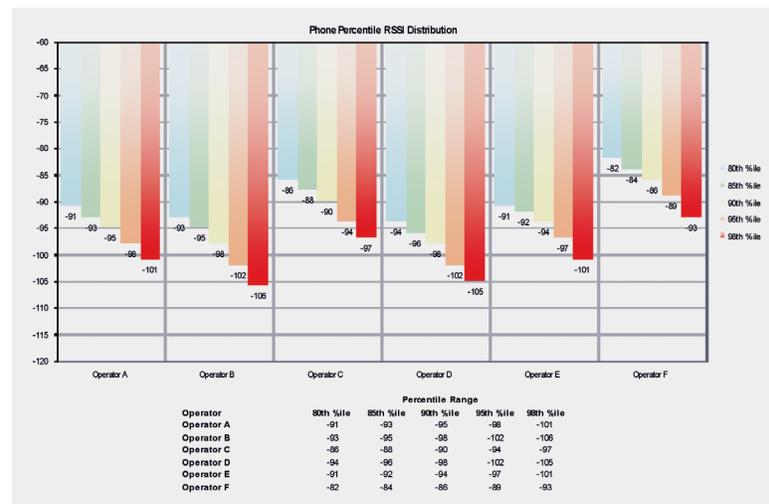
- Signal Quality versus Voice Quality
- RSSI Distributions
- Signal Quality Distributions
- Voice Quality Distributions
- RSSI Before and After Handover
- Signal Quality Before and After Handover
- RSSI versus Signal Quality Scatter Plot
- Handover Improvement Plot
- Dropped Call summary

## Summary and Technical Tables

- Executive Summary of Network Performance
- Summary of Network Parameters
- Network Usage Summary with roaming statistics
- Network Usage Summary for home network only
- Worst Server Interference and Poor Coverage areas
- Handover Statistics including counts per carrier
- Summary of system alleviation of Interference cases and Poor Coverage cases
- Handover Analysis including bad handover selection cases and handovers with large RSSI improvements
- Interference Coverage-Type cases after Handover
- Detailed Breakdown of all Failed Initiations and Dropped Calls

## Maps

- Call Exceptions Plot
- No Service Attempts
- Blocked calls detailing Access Timeouts, Assignment Failures, Call Failures, Reorders, Service Rejections, System Busy
- Foreign System IDs
- Dropped Calls
- RSSI plot
- Receive Quality Plot
- Voice Quality Plot
- Band/Sub-Band Plot
- Handover Plot, locating handover quality of each handover



## About GWS

Global Wireless Solutions, Inc. defines the industry standard for network benchmarking, performance analysis and testing. Working with some of the world's largest wireless network providers, GWS offers standardized, high-quality network data and engineering analysis to its customers through a suite of benchmarking products, services, and diagnostic apps that includes drive, venue and in-building testing.

Founded in 1996, GWS is headquartered in Dulles, VA. At last count, GWS has driven more than 9 million data collection miles for its customers. For more information, visit [www.gwsolutions.com](http://www.gwsolutions.com) and follow us on Twitter at @gwsolutionsinc.