

FAB S and LAB S

NSI-MI: Ensuring Confidence in Antenna Measurements, from θ to ϕ



What's in a name? A company's name may mirror its founder or reflect its products or market. It might not be an actual word, just a pleasant, multi-syllable sound. No matter the form, a company's name is a symbol of what the company represents, particularly the intangibles surrounding the product or service, intangibles that build customer trust and loyalty. The name NSI-MI Technologies has achieved that enviable brand status, representing the combination of two complementary companies with a long heritage in microwave antenna measurements.

Their story begins in 1956, with Scientific Atlanta and the first antenna pattern recorder for recording antenna gain measurements, using ink on glossy paper. Separately, Nearfield Systems Incorporated (NSI) formed in California in 1988 to develop near-field antenna measurement systems. Then, in 1997, Scientific Atlanta decided to focus on the cable market and spun out the antenna measurement division, known internally as Microwave Instrumentation Technologies—soon shortened to MI Technologies. MI Technologies specialized in far-field and compact antenna test range (CATR) measurements, a capability complementing NSI's focus. The two companies merged in 2016 to yield a comprehensive set of capabilities able to solve virtually any antenna challenge. At its two facilities outside Atlanta and Los Angeles, NSI-MI has six test ranges and a combined manufacturing footprint exceeding 126,000 square feet. The team comprises some 250 staff, and growing; more than 150 (60 percent) are mechanical, electrical, software and systems engineers.

In addition to performing antenna, radome and radar cross section measurements, NSI-MI offers a range of measurement systems, from standard products to target simulators for the defense market and specialized test systems for wireless and automotive applications.

NSI-MI also designs and constructs complete antenna test ranges with full instrumentation and provides all types of support services to meet customer needs. The company doesn't stop at testing antennas; NSI-MI designs antenna systems and has a catalog of some 300 antenna products of various types that span frequency bands from 10 MHz to 170 GHz.

To improve antenna measurements, NSI-MI recently developed a Vector Field Analyzer (VFA) and a line of instrumentation products to support it. The VFA is the foundation of an enhanced antenna measurement system, combining accurate RF performance with fast measurements. The VFA's supporting products include motion control, mixers, backfit panels and remote controls.

NSI-MI's markets are strong and growing, driven by new technologies and applications: 5G, with massive MIMO and mmWave phased array base stations; automotive, where high-end cars and trucks are "antenna farms" of some 70 antennas; and satellite, launching a new generation of commercial rockets and satellites carrying antennas for broadband, IoT and telemetry.

From design to characterization, antenna technology is challenging, requiring ongoing diligence to ensure traceability to NIST standards. The NSI-MI team takes the challenge seriously, maintaining American Association for Laboratory Accreditation and providing leadership for technical groups such as the Antenna Measurement Techniques Association (AMTA). Many of NSI-MI's projects span years from concept to completion, and many customers have been customers for decades. That reflects NSI-MI's commitment to the success of a project, acting as an extension of the customer's team. Working collaboratively to ensure accurate antenna measurements is why NSI-MI's tag line is "Test with Confidence™."

www.nsi-mi.com