

# Spherical Near-Field mmWave Antenna Measurement System



SNF-FIX-1.0



## FEATURES

- X-band to mmWave Measurements
- 3D Far-Field, Holographic & Near-Field Patterns
- Measurement Sphere up to 1.0 m diameter
- Stationary AUT
- Automatic Alignment Capability
- High Accuracy & Position Repeatability
- Far-Field Measurement Options Available
- Low Cost & Portable

## DESCRIPTION

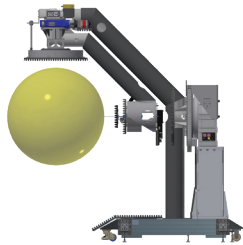
The SNF-FIX-1.0 is ideal for measuring stationary mmWave on-chip antennas and applications from 10 GHz up to 300 GHz. It uses a multi-axis high accuracy stepper motor driven system to position the probe on a spherical surface while the AUT remains stationary. The system is large enough to incorporate RF converter modules from OML and VDI as part of the probe carriage assembly and maintain a probe tip radius of roughly 500 mm (20 in.). Individual mmWave modules can be swapped to cover the relevant frequency bands, leaving the rack and cabling portion of the RF sub-system intact; thus making for a very modular and upgradable test system. All positioners contain integrated RF rotary joints, maximizing cable phase stability under test as well as slip-ring assemblies in the Phi and Theta axis positioners.

## CAPABILITIES

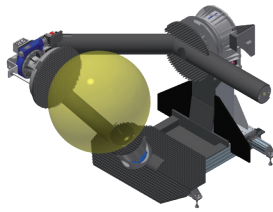
The SNF-FIX-1.0 supports NSI-MI, Keysight, and Rhode & Schwarz RF receivers and is capable of measuring amplitude and phase patterns from X-band to mmWave. The system includes a software workstation pre-loaded with NSI2000 Antenna Measurement Software and Windows and provides automatic setup of scans based on measurement parameters and desired output. Measured data can be processed for far-field or holographic patterns yielding complete characterization of the antenna's performance. A single data set provides information on antenna gain, side lobe structure, beam pointing and cross polarization.

## SPECIFICATIONS

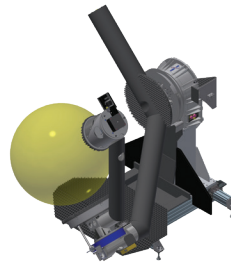
Positioning System	
Scanner Type	SNF–Serial Phi, Theta, Pol axes with Stationary AUT
Max AUT Diameter	1.0 m (40 in.) diameter measurement sphere
Max AUT Weight	No weight limit for baseline system 6 kg (13 lb) with optional mmWave Micro-positioners
Max Probe Weight	6 kg (13 lb) (WR90 or mmWave payloads)
Repeatability	0.03° RMS Phi/Theta/Pol
Resolution	0.01° Phi/Theta
Speed	10/5/20 °/s Phi/Theta/Pol
Position Controller	ELE-PMC
Motor Cables	Quick-connect 7.6 m (25 ft)
PC Workstation	Windows computer with LCD monitor
Power	500 W, 100–240 VAC switchable, 50/60 Hz
Software	NSI2000 with optional Professional Edition, Far-Field, MARS
Absorber	1.5 inch convoluted
RF System	
Scanner RF Cables	20, 40, or 50 GHz, 6 m (20 ft)
Rotary Joints	26.5, 40, or 50 GHz (Phi, Theta, Pol)
Range RF Cables	20, 40, or 50 GHz, 4.6 m (15 ft) to AUT, 7.6 m (25 ft) to Scanner
RF Receiver Systems	NSI-MI VFA, Keysight PNA, Rhode & Schwarz ZVA
Accessory Options	
RF Antenna Products	OEWG probes and SGH's (10 to 50 GHz)
mmWave Upgrades	Standard bands: 50-75, 60-90, 75-110 GHz Available: Up to 300 GHz
AUT Stand/Positioner	Stand with integrated AUT Alignment Micro-positioner
AUT Microscope	Up to 450X magnification with motorized zoom/focus, LCD monitor, and Mobile Floor Stand
Weights and Dimensions (Scanner Only)	
Installed Max Envelope W x L x H	2.6 m (102 in.) x 3.7 m (145 in.) x 2.7 m (106 in.)
Transport Envelope W x L x H	0.9 m (34 in.) x 2.4 m (96 in.) x 1.8 m (69 in.)
Installed Weight (scanner only)	1090 kg (2400 lb)
Crated Dimensions W x L x H	2 crates up to 1.5 x 1.7 x 2.1 m (59 x 67 x 83 in.) 1 crate 1.2 x 2.7 x 2.1 m (47 x 106 x 83 in.)
Nominal Chamber W x L x H	4.0 m (158 in.) x 5.0 m (197 in.) x 3.0 m (118 in.)



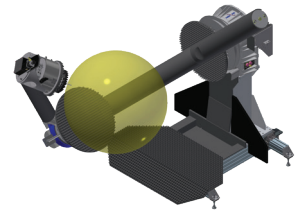
Phi: -0°; Theta: 0°



Phi: -90°; Theta: 60°



Phi: 135°; Theta: 90°



Phi: -135°; Theta: -135°