



## Antenna Testing Services

Millitech is pleased to offer antenna measurement and testing services to meet both your commercial and defense needs. We can service microwave and millimeter-wave antennas up to 220 GHz. A near field range and indoor compact antenna range is available for evaluating and characterizing your various antennas. Millitech utilizes state-of-the-art software and we have a very capable antenna test team. Please contact Millitech with your specific measuring requirements. If design or repair assistance is required, these services are available in-house.

### Near-Field Range

Millitech's capabilities measuring high gain millimeter-wave antennas are unsurpassed with our Near-field Range (NFR). In a traditional Far-field Range, large millimeter-wave antennas can require in excess of 1,000 m of range for accurate measurements. Because of the distance requirements, this often means testing outdoors in an uncontrolled environment, which introduces an unacceptable amount of variability in the measurements.

For millimeter-wave phased arrays, accurate measurement and the ability to troubleshoot down to specific elements are required. We are currently equipped with a Nearfield Systems 5' x 5' planar Near-field Antenna Range mounted on a granite base for added stability. Our Near-field Range allows us to conduct antenna testing into an indoor controlled setting. The NFR can measure large high gain antennas with sidelobes in some cases 50 dB below the peak, and beam pointing to the 1/100th of a degree up to 220GHz using phase coherent Millitech frequency extenders. For a near-field measurement, the phase front measured in close proximity to the antenna under test is mathematically transformed into a far-field pattern using an FFT algorithm.

### Benefits:

- Indoor environment
- Measures 3-D patterns
- Near-field data available for post-processing
- In-house engineering, design and repair capabilities

### Compact Range

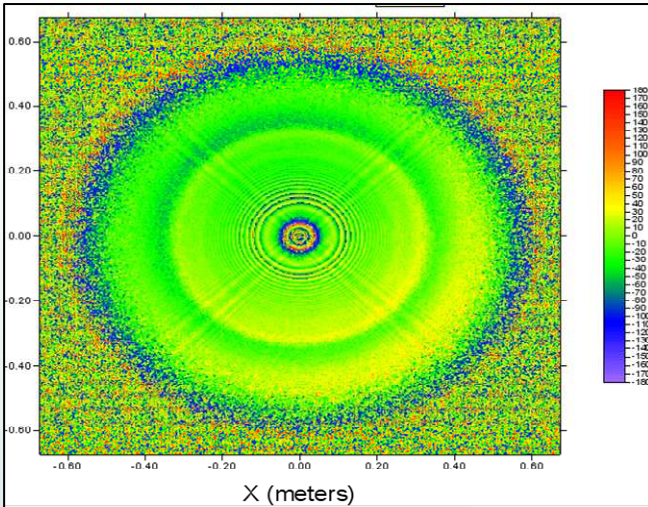
Millitech has an indoor Compact Antenna Test Range for testing antennas from 2 inches to 10 feet in diameter. The range is optically collimated to produce far field measurements from 7 GHz through 220 GHz. Test equipment includes an Agilent PNA capable of vector measurements up to 50 GHz. Millitech-designed frequency converters are used to extend this range to 220 GHz. The positioner can handle virtually any load up to 1000 lbs. and testing capability runs 24/7, in a climate-controlled environment.

### Benefits:

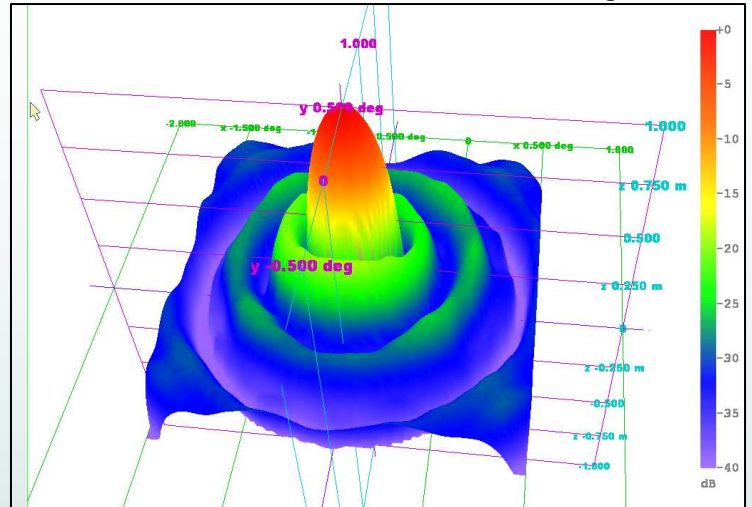
- Indoor environment
- Capable of measuring large aperture antennas, up to 10'
- Simultaneous, multiple frequency measurement



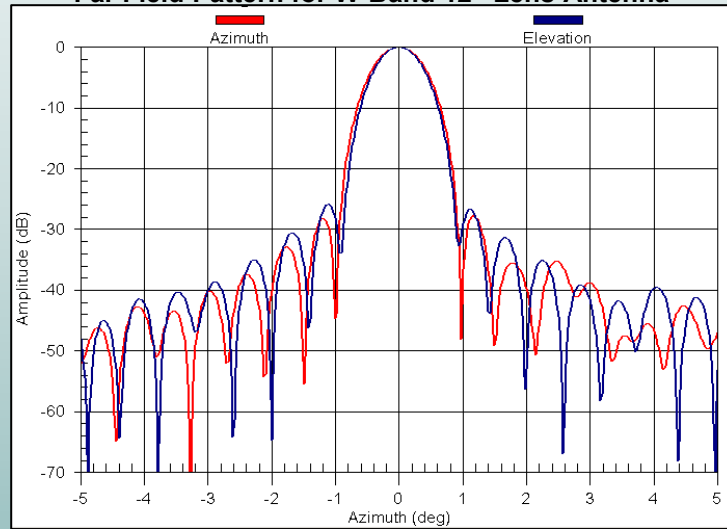
**Near-field Phase Plot for 4' W-Band Cassegrain**



**3-D Far Field Pattern for 3' W-Band Cassegrain**



**Far Field Pattern for W-Band 12" Lens Antenna**



<b>Test Range Specifications</b>		
<b>Specifications</b>	<b>Indoor Compact Antenna Test Range</b>	<b>Indoor Near Field Antenna Test Range</b>
Test Zone (quiet zone)	up to 120 inch diameter (304.8 cm)	Up to 60" x 60" (152.4 x 152.4 cm)
Frequency Range	7 to 220 GHz	Up to 220 GHz
Aperture Size	2 to 120 inches (5.1 to 304.8 cm)	1 to 60 inches (2.5 to 152.4 cm)
Weight Limits	1000 lbs. approx. (454 kg)	N/A
VSWR	2.0: 1 (typical)	Varies by band
Polarization Isolations	30 dB (typical)	30dB (typical)
Extraneous Signal	-70 dB (typical)	N/A
Dynamic Range	Up to 85 dB	Up to 90 dB (Calculated Far Field)

*Please contact us with any testing requirements you may have.  
We look forward to working with you!*

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