



Reflection-less Spherical Antenna Mount RSAM

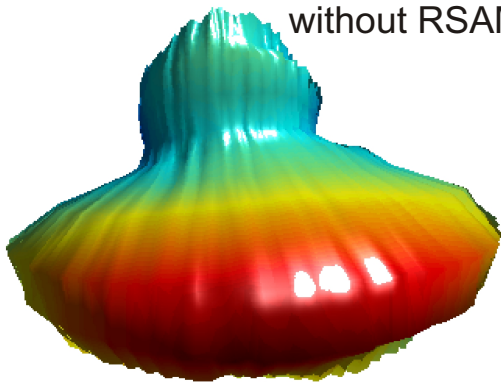
The new Diamond Engineering Reflection-less Spherical Mount is now a DAMs platform option that may be added to any DAMs platform. The mount utilizes delrin for ball bearings & structure and enables full spherical measurements to resolutions of .1 degrees. The mount is ideal for unobstructed gain data and efficiency. The belt driven system is plug and play substitution to the DAMs

Features

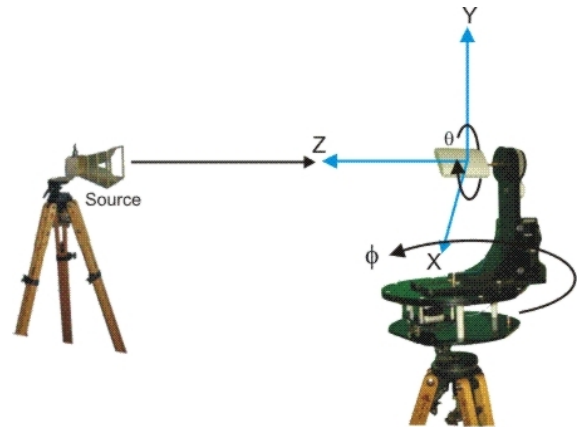
- Low reflection - 90% delrin construction
- DC- 18GHz
- 6" horizontal adjustment for centering
- 12" Vertical Height
- .1 degree movement resolution
- Up to 10 lb load
- CTIA and general efficiency software
- Runs from existing platform elevation plug

Freq = 5GHz Az= -10 EL= 25

Patch antenna measured without RSAM

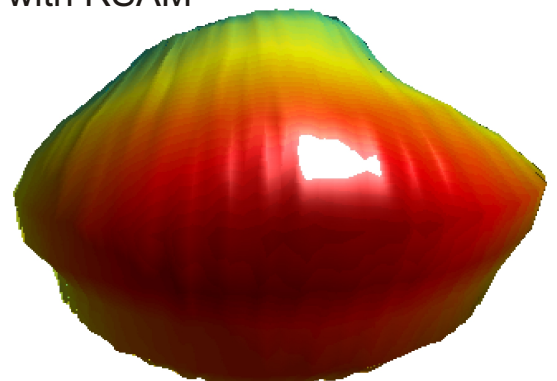


%EFF



Freq = 5GHz Az= -10 EL= 25

Same patch antenna measured with RSAM





Reflection-less Spherical Antenna Mount

Efficiency with AUT S22 removed

Efficiency

$$\epsilon = \frac{\pi}{2NM} \sum_N \sum_M \frac{S_{21}^2(\theta_M, \phi_N)}{P_L G_T} \cos(\phi_N)$$

N = number of EL cuts

M = number of Az cuts

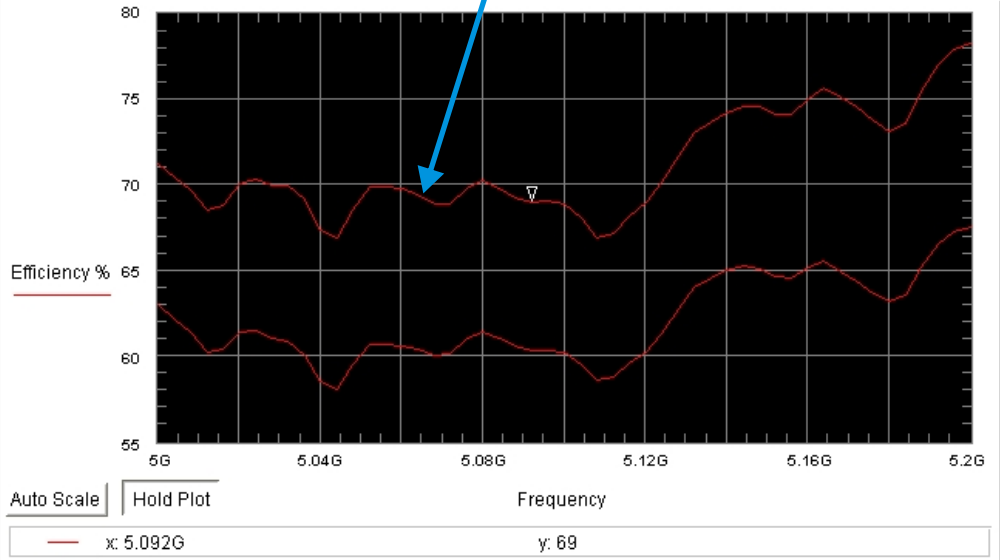
$S_{21}^2(\theta_M, \phi_N)$ = Measured REG1

PL = Path loss (REG2)

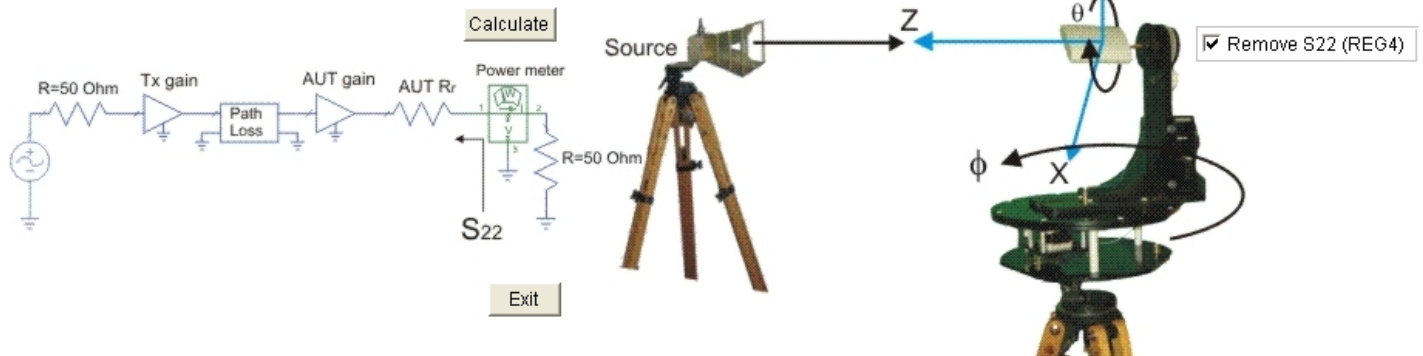
GT = Ref antenna gain (REG3)

Efficiency is calculated using data in REG1-3.

AUT S22 may be removed. Measured S22 data must be present in REG4. S22 data may be of any size or shape as long as the frequency extents are identical to REG1 S21 data.



Efficiency Model



AUT Efficiency and Radiation Resistance

