

# **Analyzing the Disturbing Effects of Microwave Probe on mm-Wave Antenna Pattern Measurements**

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## **Abstract:**

Realizing an antenna measurement environment with specific supporting structures and interconnection between the antenna under test and measurement equipment like a vector network analyzer in the mm-wave range is not as trivial as for the much lower frequencies. Commonly used interconnection methods like connector or probe and close-by supporting structures, to be able to carry out the measurements, introduce disturbances of both the near- and far-field patterns. Those influences are clearly present due to the fact that both interconnections and the close-by supporting structures can become radiant, reflective or obstructive objects. In this paper we will investigate, illustrate and prove which object has the most influence by comparing several specific simulation models of the antenna and its environment with the measurement results. Based on that outcome we will propose a way to reduce the disturbances.