Disturbing Effects of Microwave Probe on 60 GHz Antenna Pattern Measurements

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Abstract:

In order to be able to measure and validate an antenna design in the mm-Wave frequency range it must be connected to a Vector Network Analyzer (VNA) or Spectrum Analyzer (SA). One of the challenges is to interconnect such a small antenna and the measurement equipment without influencing the antenna measurements. A commonly used method for interconnection is making use of a connector or a probe. The problem is that the connector as well as the probe are often many times larger than the antenna under test itself and are located close to the radiating part of the antenna structure. This means that the antenna measurements will be influenced. Therefore, the paper focuses on the disturbing effects of the probe as a radiative, reflective and obstructive object on 60 GHz antenna pattern measurements and how they can be reduced.