

The Development of Broadband Antennas for Applications in Antenna test Ranges

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ABSTRACT

Nowadays several antenna test ranges are existed. They are compact range, near field range, and far field range. Normally, the transmitting antennas in test ranges are narrow band. However, in wide bandwidth antenna measurement, several transmitting antennas of different frequencies are required. The drawback of these antenna test ranges by using the different kinds of transmit antenna are (1) higher cost for purchasing the different kinds of probe antennas, (2) time consuming for changing the different kinds of probes, and (3) uncertainty of the antenna pattern test results. In this paper, a low directivity ultra wideband horn antenna and bow-tie antenna will be developed for these antenna test ranges. The operating frequency for these antennas are from 1 GHz to 40 GHz and 300 MHz to 1 GHz. The applications of these antennas are extensively in the probe of the antenna measurement system, such as the indoor far field range, near field range and compact range. The properties of ultra wide-band antenna are lots of, its also have the symmetry antenna pattern and low directivity and the phase center is very little change during the operation frequency range. It will be better to apply this special antenna to the probe of several kinds of antenna measurement systems.

Keywords : antenna measurement system、 ultra wideband antenna

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