# Abstracts

## Port reduction methods for scattering matrix measurement of an n-port network

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The port reduction method (PRM) is a method to acquire the scattering matrix of an n-port network from the scattering matrix measured at a reduced port order by terminating certain ports. This then relaxes the instrumentation requirement and calibration procedure. As the port order is reduced to two, the scattering matrix of an n-port network can be obtained from the measurement using a conventional two-port vector network analyzer. In this paper, we describe two novel PRMs, which can reduce the order of measured ports to two. The experimental results show good accuracy. These two PRMs can provide a simpler calibration procedure and instrumentation than those directly using an n-port network analyzer. In addition, they give more accurate results than those measured by a two-port network analyzer with the assumption of using ideal terminators.

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