



PRECISION 7mm 2-PORT STANDARD SET

Features

- 2-Port Calculable Standards
- Separated Interface and Step Discontinuities
- Broad Range of Reflections
- Stable Standards
- Extremely Repeatable



Model 2654B

Description

The Maury model 2654B precision air line standard set contains calculable 2-port 7mm coaxial air lines¹. These standards are provided with the step discontinuity separated from the connector interface for better accuracy². The set consists of a precision outer conductor with beadless 7mm connectors and three (3) center conductors. Each center conductor has a different diameter to produce an accurately known VSWR which is directly calculable from the mechanical dimensions. They employ self-centering, spring-loaded pins to allow connection easily without tools.

Application

The air lines in this standard set are extremely stable, easy to use standards for a variety of measurement applications. They cover a wide range of mismatch values and the simple geometry allows direct calcu-

lation of reflection, insertion loss, and group delay characteristics. This makes the set ideally suited for verifying the performance and accuracy of network analyzers.

Specifications

Frequency Range DC - 18 GHz
 VSWR ($\Gamma=0$) 1.005 maximum
 VSWR ($\Gamma=.15$) $1.35 \pm .025$ (all peaks)
 VSWR ($\Gamma=.60$) $4.0 \pm .25$ (all peaks)
 Reference Impedance 50 ohms
 Nominal Overall Electrical Length 10cm
 Nominal Mismatch Section Length 7.5cm
 Odd $\lambda/4$
 Frequencies 1, 3, 5, 7, 9, 11, 13, 15, 17 GHz

Model	Connector	Frequency Range GHz	Outer Conductor Diameter (in.)	Outer Conductor Diameter (in inches)		
				$\Gamma=0$	$\Gamma=.15$	$\Gamma=.60$
2654B	LPC7 ³	DC — 18	0.2756	0.1197	0.1346	0.1816



Typical Data

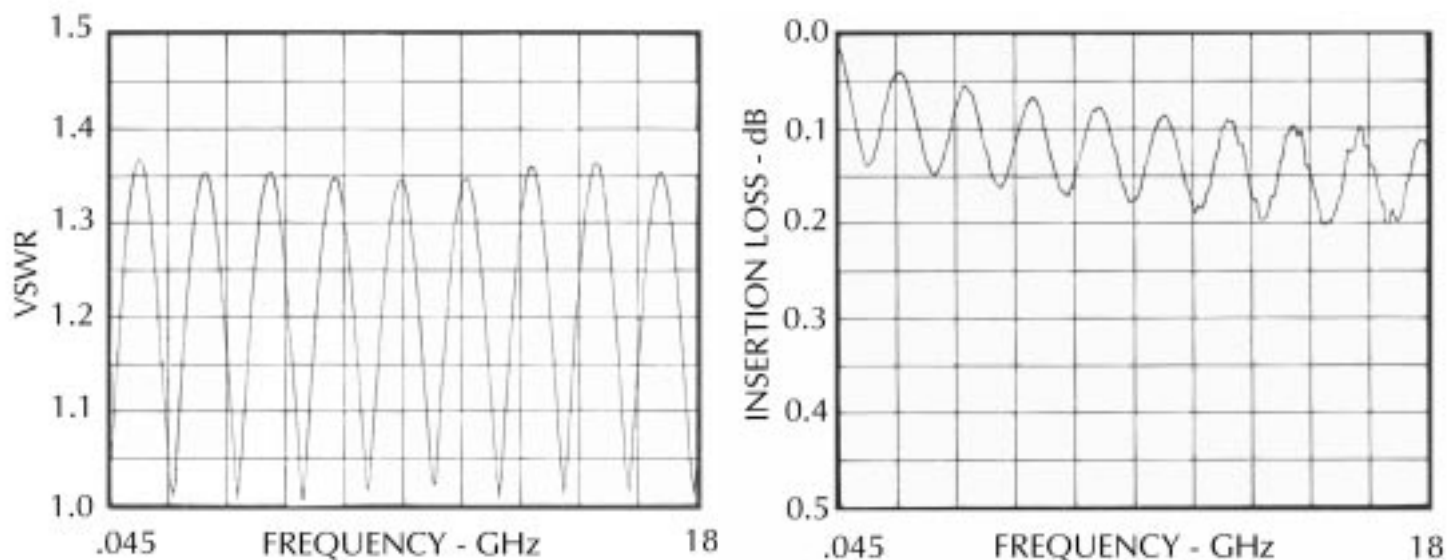


Figure 1: Reflection and Transmission Characteristics with .1346 Diameter Center Conductor (G=.15).

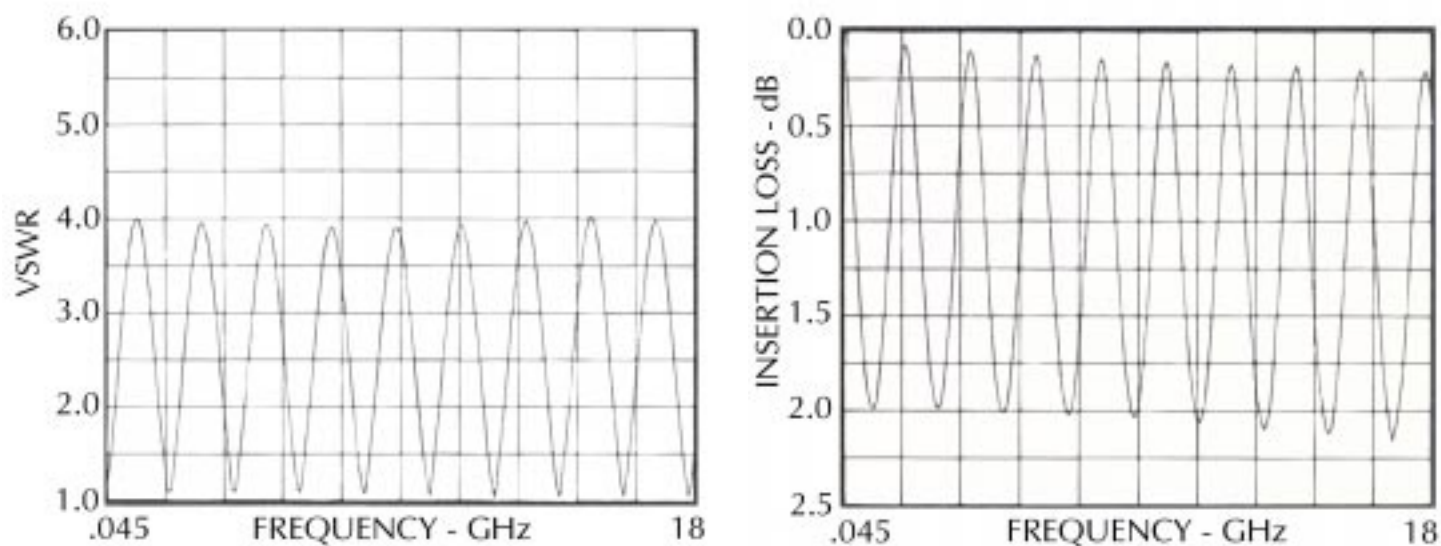


Figure 2: Reflection and Transmission Characteristics with .1816 Diameter Center Conductor (G=.60).

¹ Beatty, R. W., **Calculated and Measured S_{11} , S_{21} , and Group Delay for Simple Types of Coaxial and Rectangular Waveguide 2-port Standards**, NBS Technical Note No. 657, December, 1974.

² Maury, M. A. Jr., and Simpson, G. R., "Two-Port Verification Standards in 3.5mm and 7mm for vector network analyzers", **Microwave Journal**, June, 1984; pp. 101-110.

³ Beadless precision 7mm connector, mates with APC7 connector.