

**CHARACTERISTICS of UNDERGROUND
SECONDARY POWER DISTRIBUTION NETWORKS
For POWER LINE COMMUNICATION**

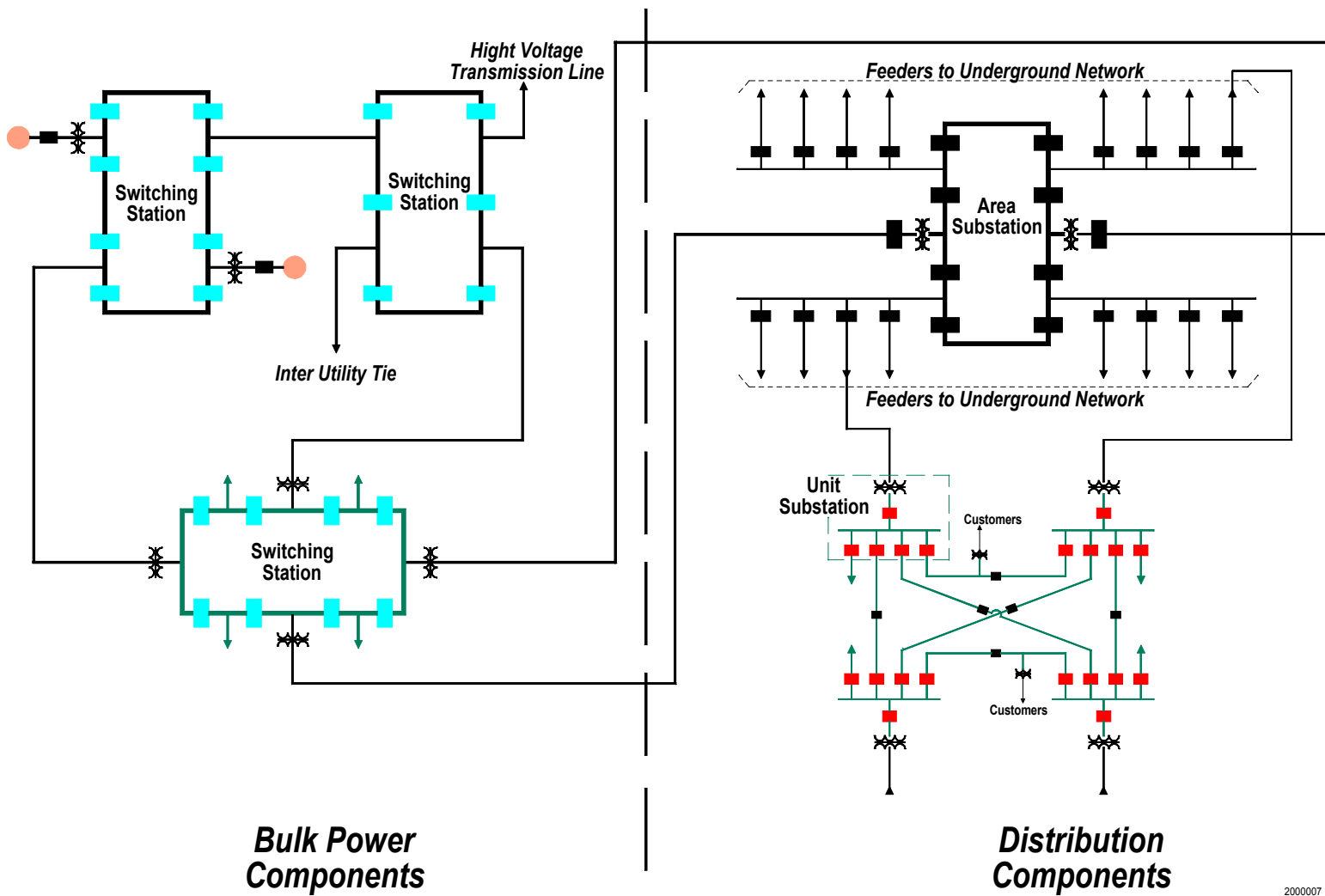
February 20, 2006

**Presented by
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Nesconset, NY 11767**

**Presented at
Telebyte Inc.
270 Pulaski Road
Greenlawn, NY 11740**

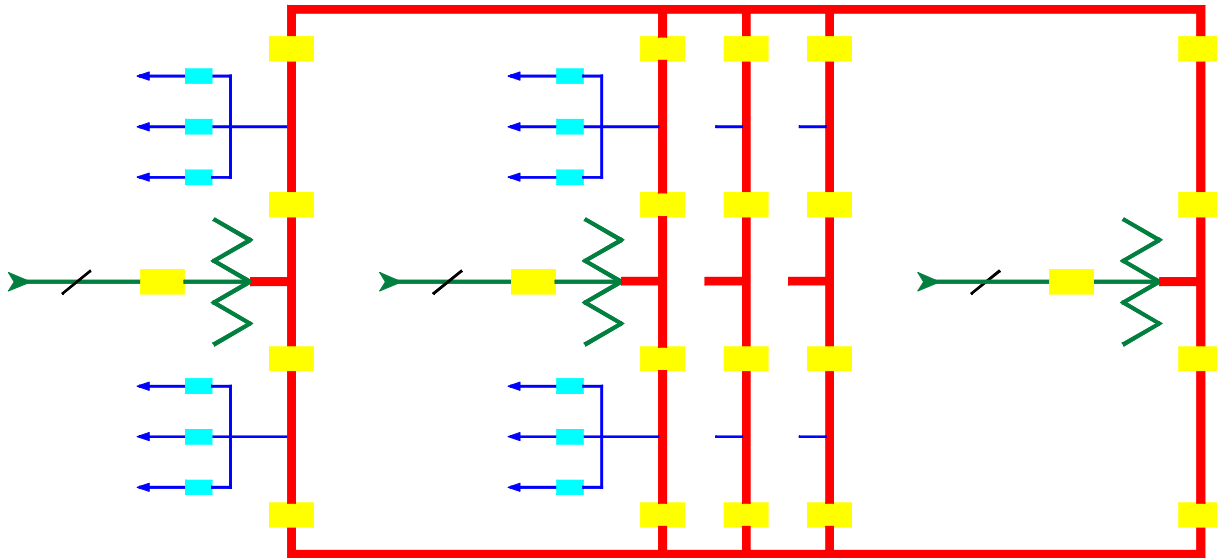
TYPICAL POWER DISTRIBUTION SYSTEM

TYPICAL POWER DISTRIBUTION SYSTEM










AREA SUBSTATION

Double Syn Bus Arrangement

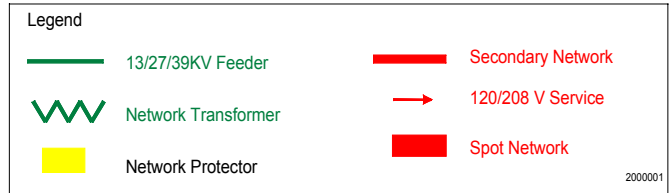
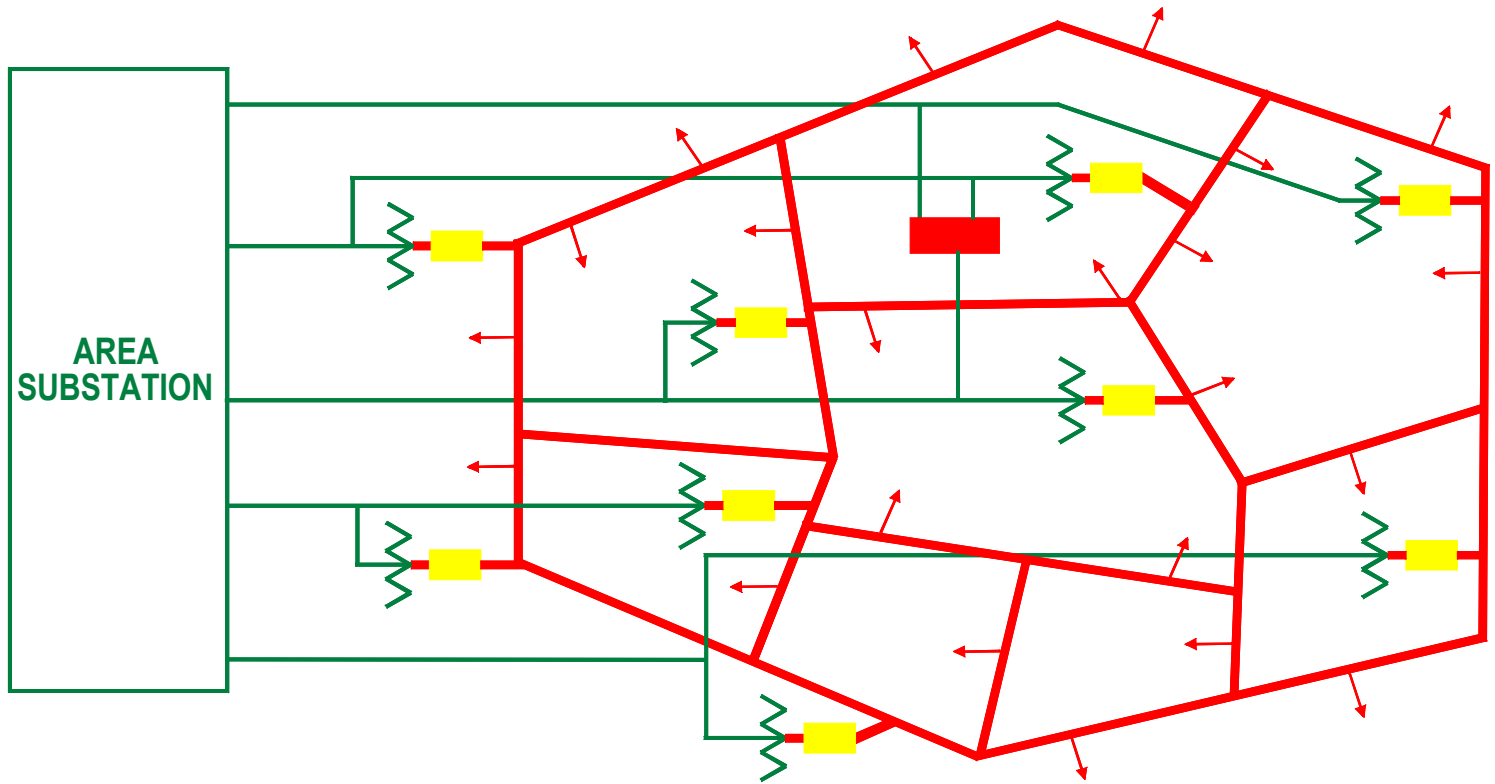


Legend

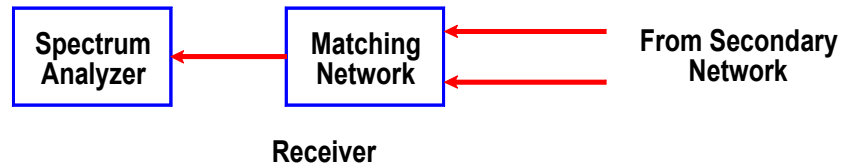
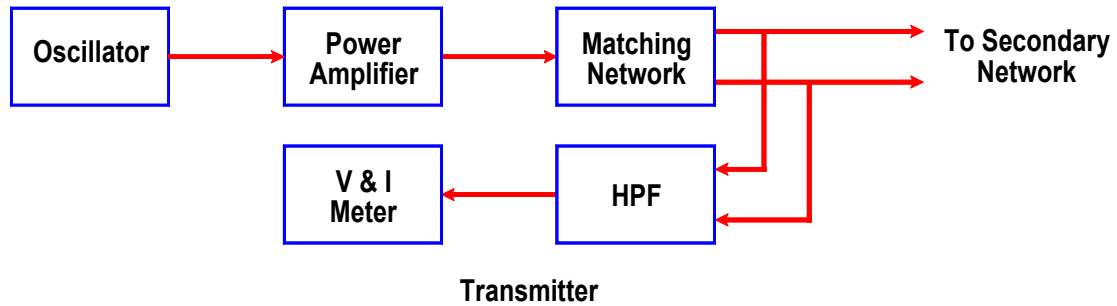
	Subtransmission Feeder		Distribution Feeders
	Circuit Switches		Distribution Feeder Breakers
	Transformer Bank		
	Station Bus		
	Breaker		

2000002

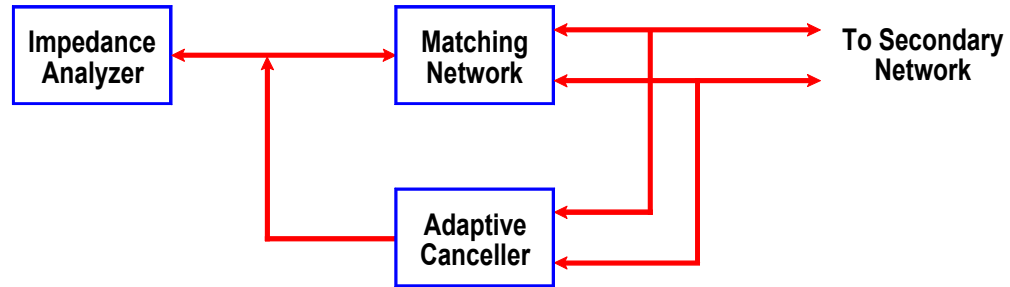
SECONDARY DISTRIBUTION NETWORK



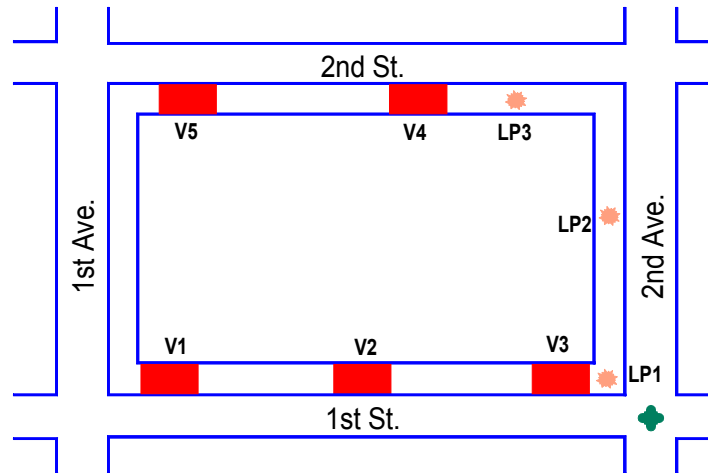
PROPAGATION LOSS INSTRUMENTATION






***SECONDARY LINE IMPEDANCE
INSTRUMENTATION***



BLOCK CELL TEST AREA

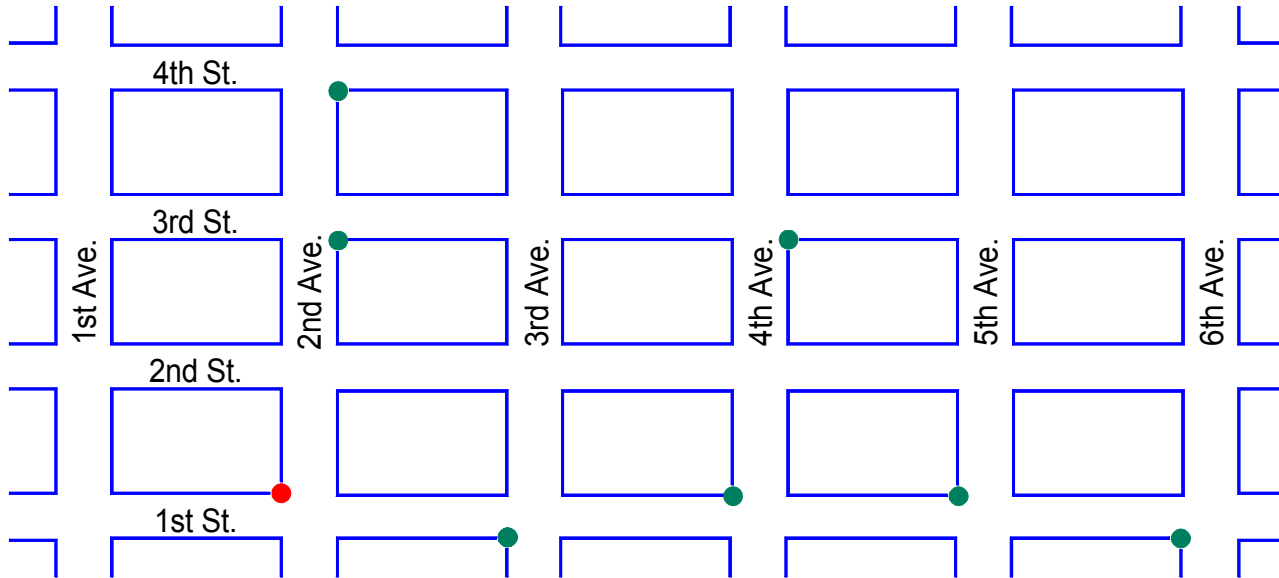


Legend

-  Underground Vault
-  Lamp Post
-  Traffic Light

2000006

EXPANDED TEST AREA



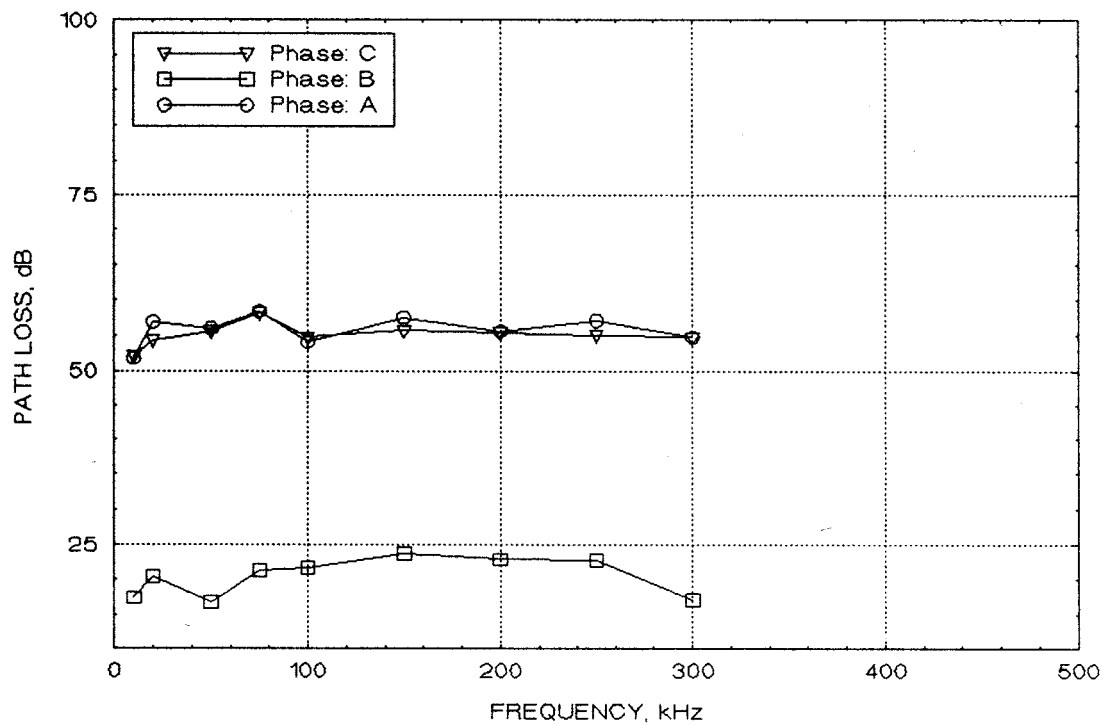
Legend

- Transmitter Site
- Receiver Site

2000005

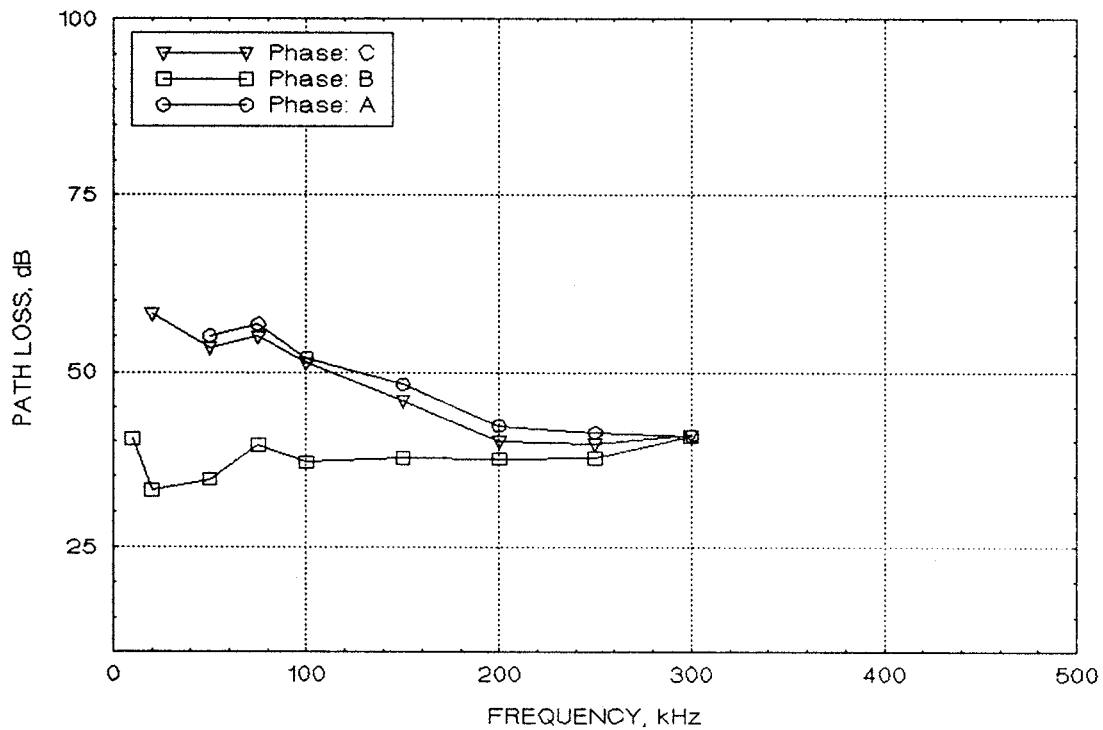
MEASURED PATH LOSS

T: V1 R: V2



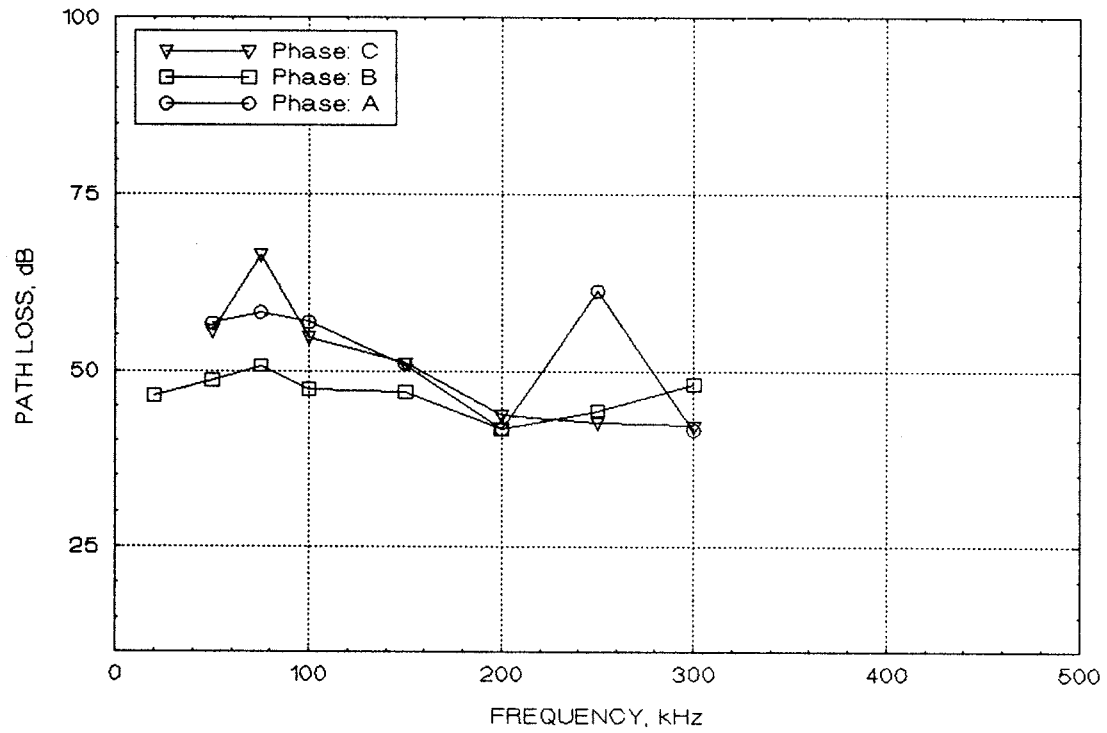
MEASURED PATH LOSS

T: V1 R: V3



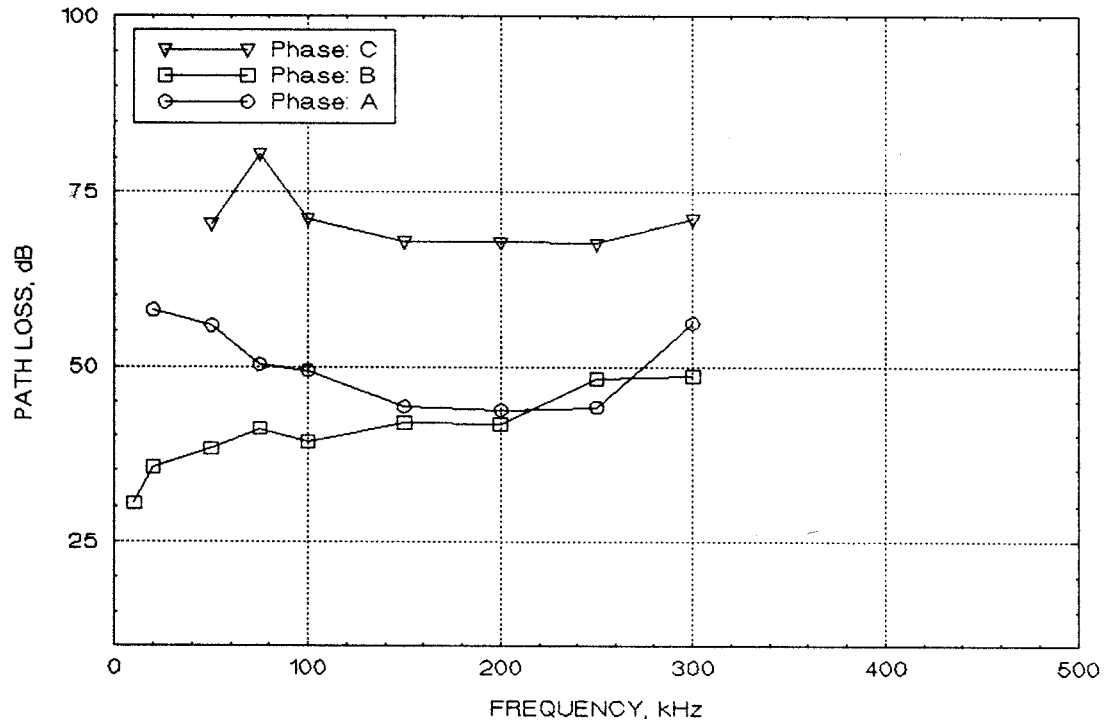
MEASURED PATH LOSS

T: V1 R: V4



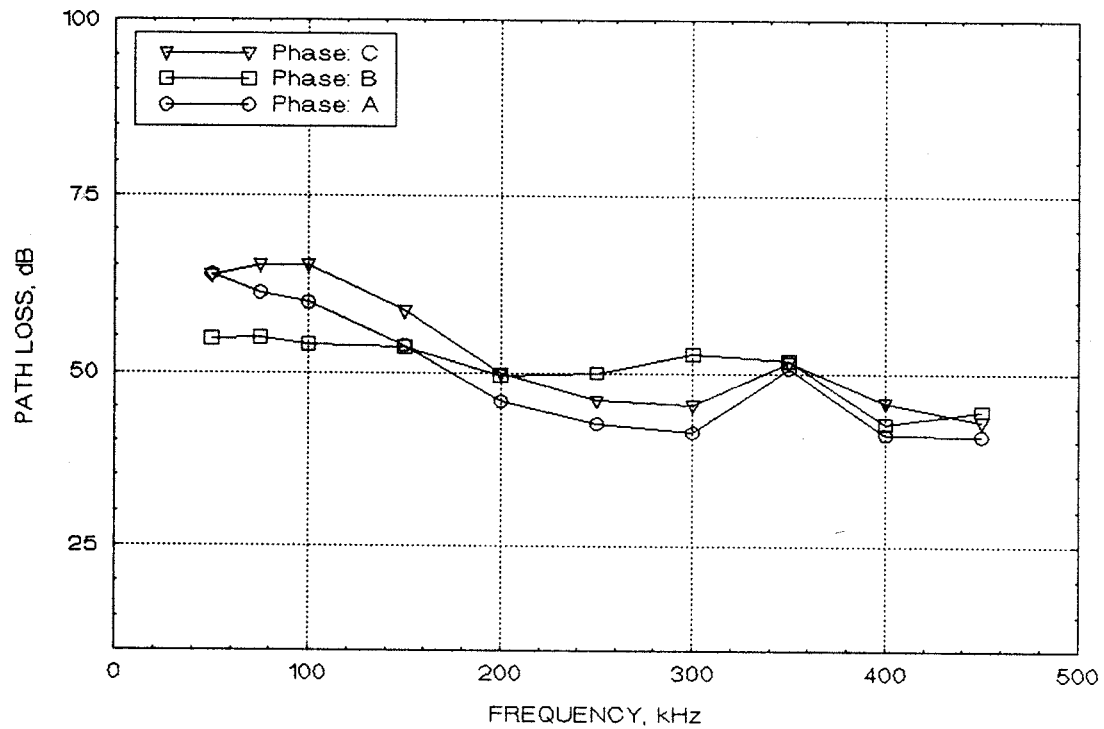
MEASURED PATH LOSS

T: V1 R: LP2



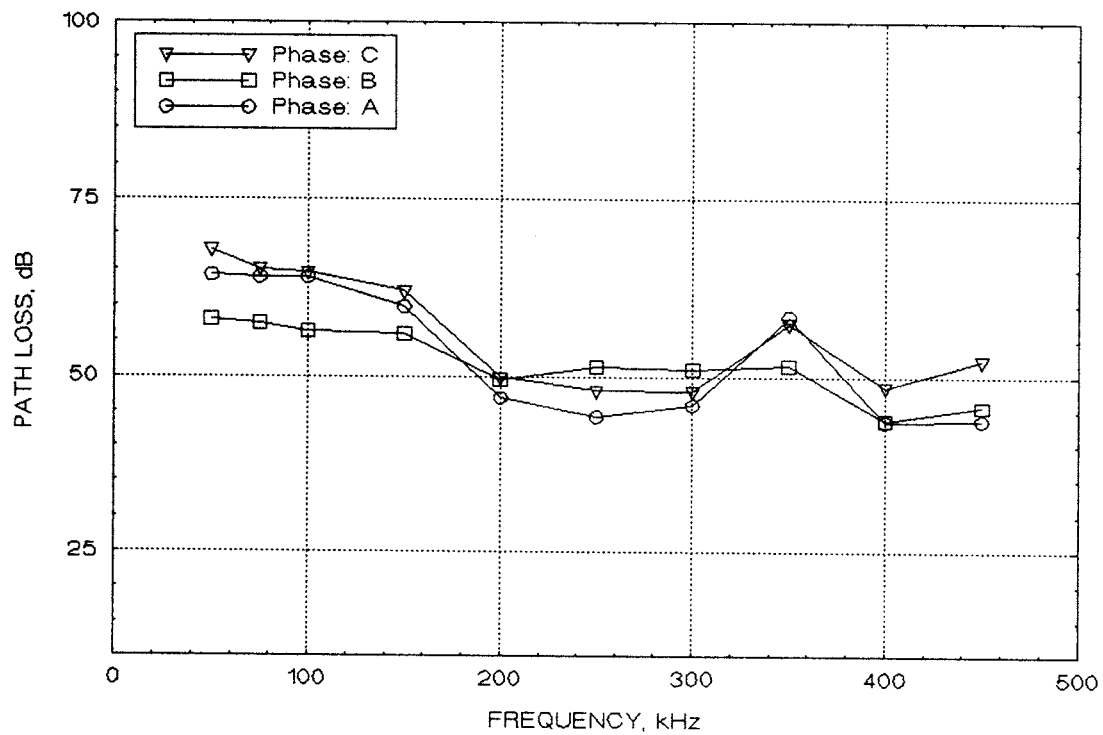
MEASURED PATH LOSS

T: V5 R: V1



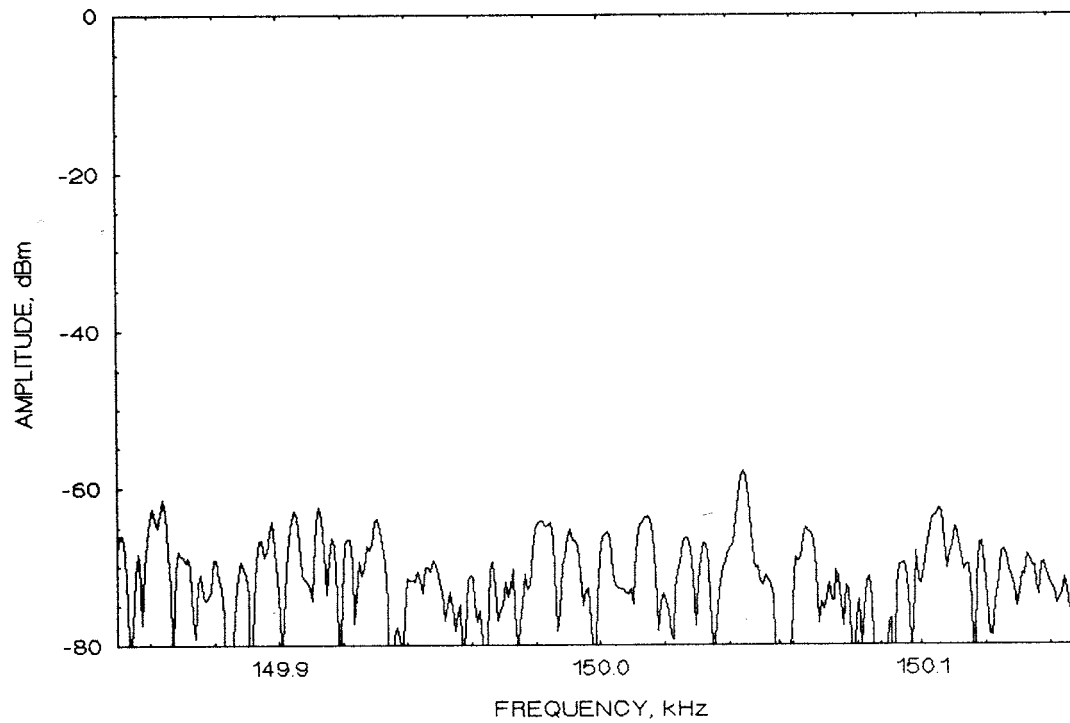
MEASURED PATH LOSS

T: V5 R: V2



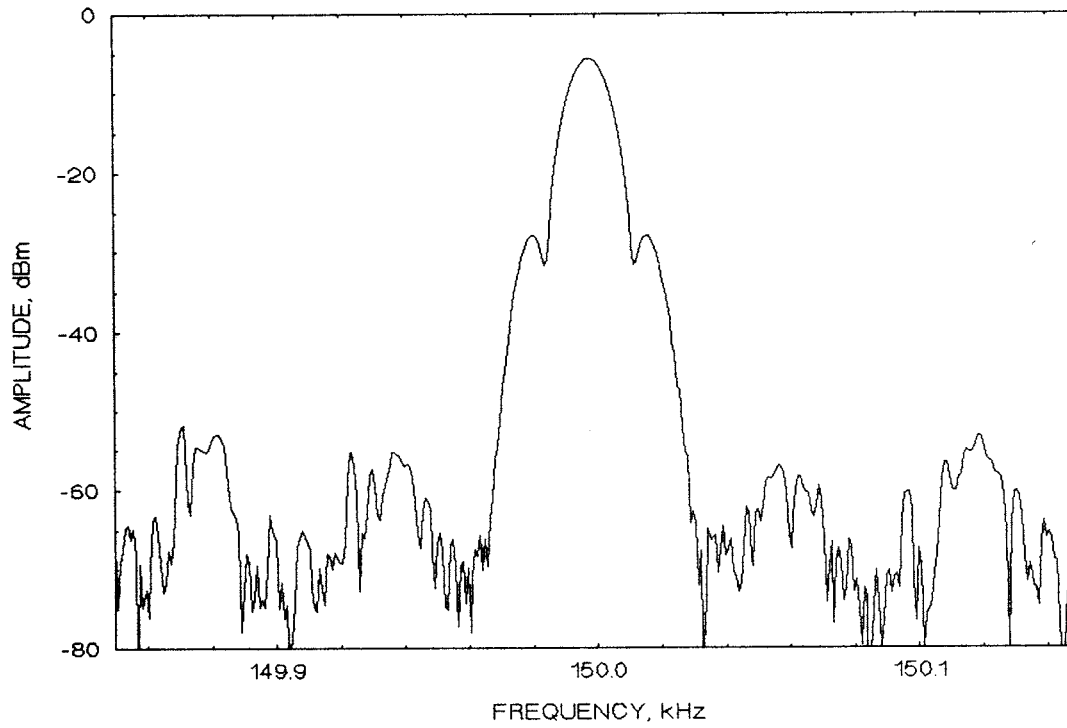
NOISE SPECTRUM

Noise R: LP2 Ph B



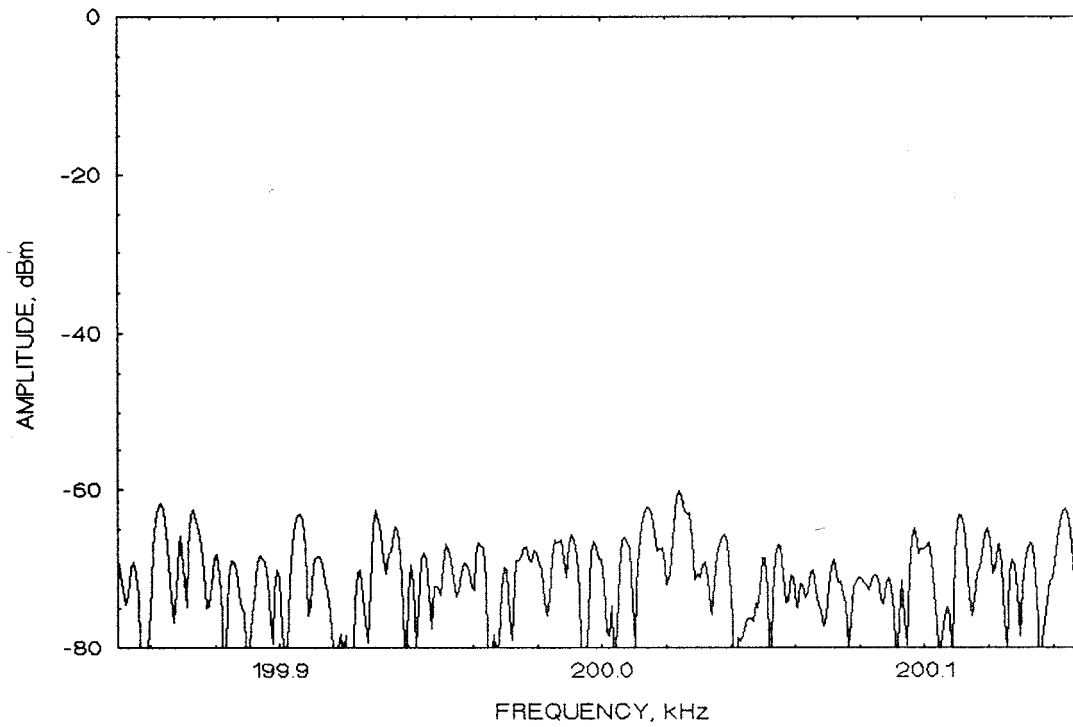
SIGNAL plus NOISE SPECTRUM

T: LP2 Ph B R: LP3 Ph B



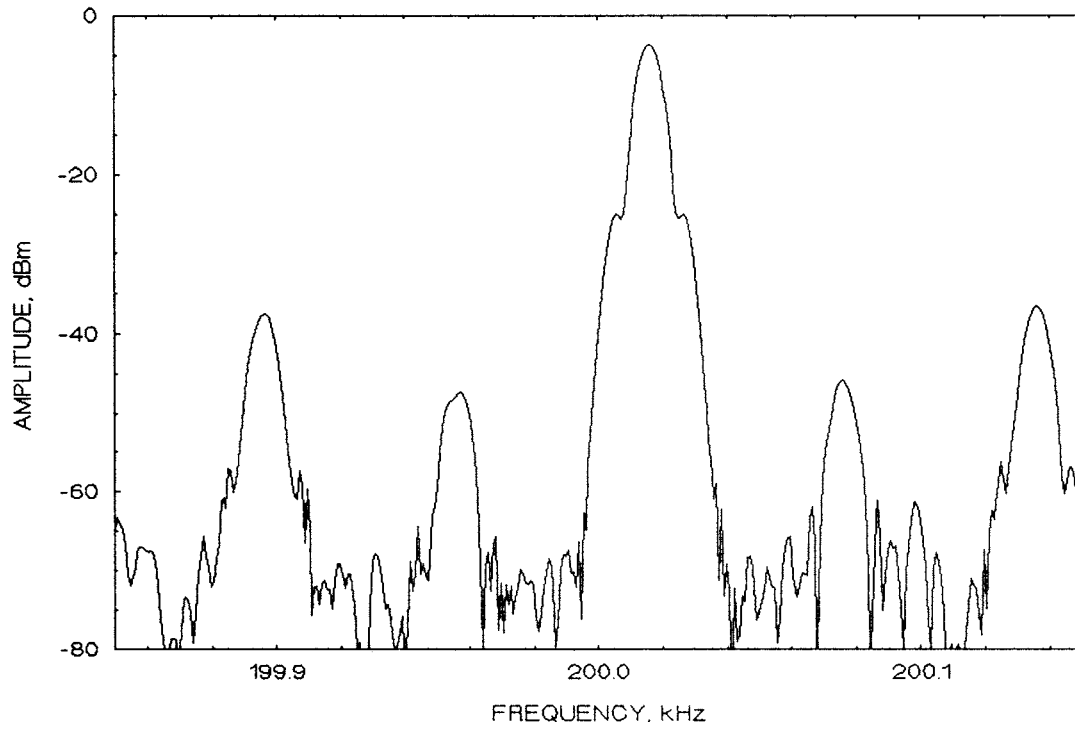
NOISE SPECTRUM

Noise R: LP3 Ph B

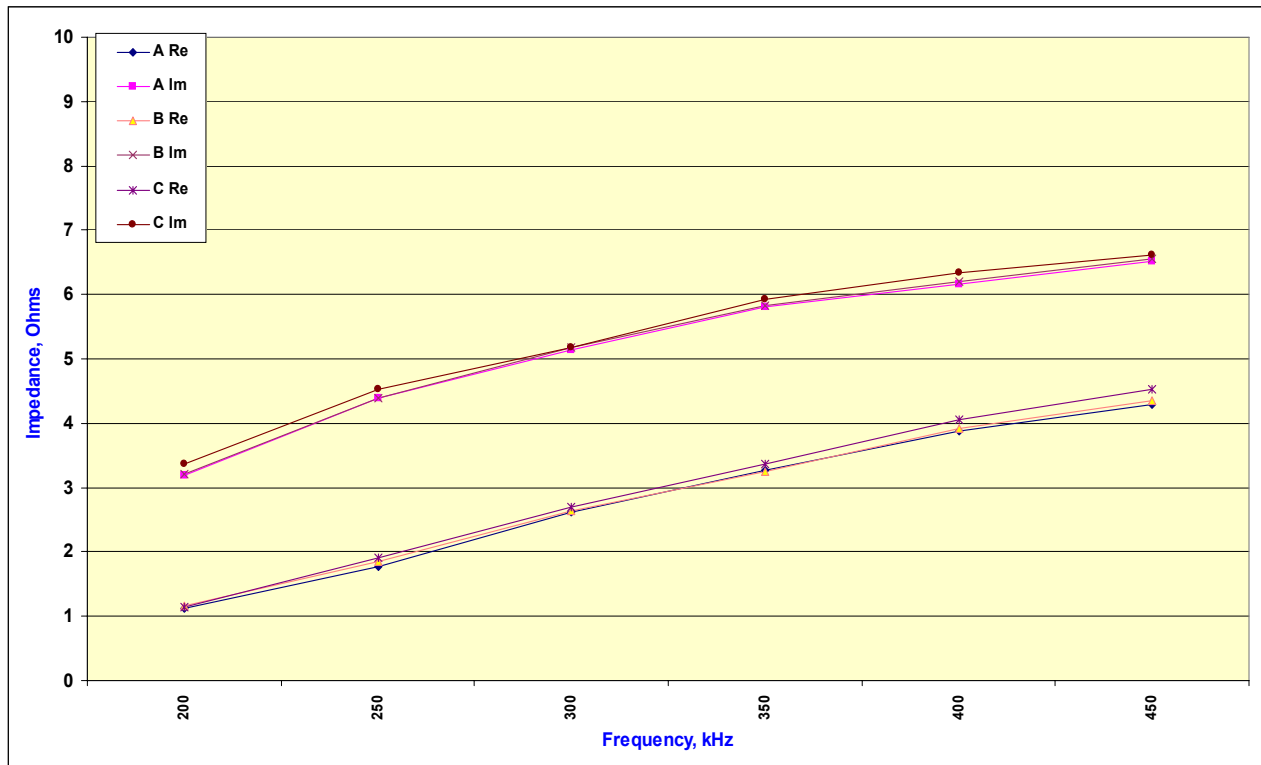


SIGNAL plus NOISE SPECTRUM

T: LP2 Ph B R: LP3 Ph B



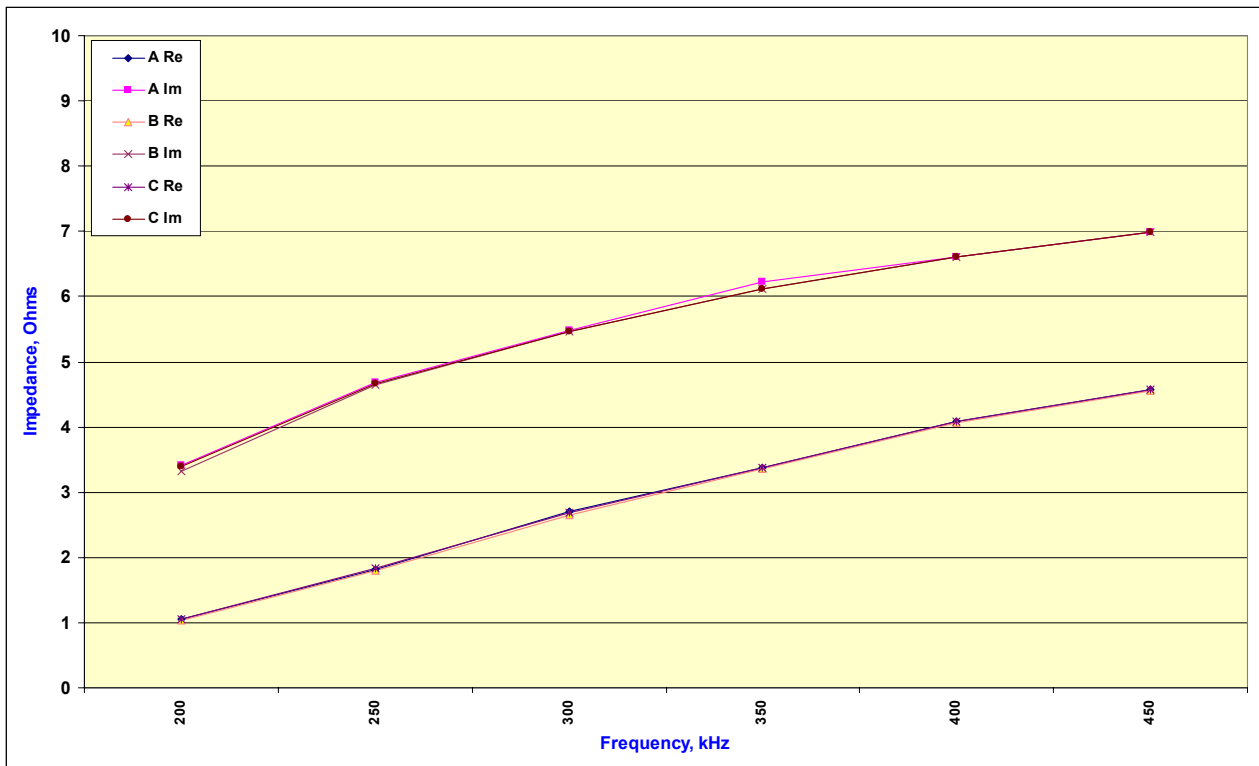
LINE IMPEDANCE
At: V1
Protector Open, Network Side



LINE IMPEDANCE

At: V3

Protector Open, Network Side



LINE IMPEDANCE
At: V4
Protector Open, Network Side

