

```
>> s_11 = 0.46*exp(j*162/180*pi);
>> s_12 = 0.103*exp(j*45/180*pi);
>> S_21 = 2.774*exp(j*59/180*pi);
>> s_22 = 0.42*exp(j*-47/180*pi);
```

```
s_matrix =
-0.4375 + 0.1421i  0.0728 + 0.0728i
1.4287 + 2.3778i  0.2864 - 0.3072i
```

```
>> theta_g = 2*pi*0.025;
>> theta_l = 2*pi*0.236;
>> e_11 = exp(-2*j*theta_g);
>> e_22 = exp(-2*j*theta_l);
>> e_matrix = [e_11 0;0 e_22]
```

```
e_matrix =
0.9511 - 0.3090i  0.0000 + 0.0000i
0.0000 + 0.0000i -0.9846 - 0.1750i
```

```
[s1] = [s]*[e]
```

```
s_prime =
-0.3721 + 0.2704i -0.0590 - 0.0845i
2.0936 + 1.8199i -0.3358 + 0.2523i
```

$S \rightarrow Y$

```
y_matrix =
0.0102 - 0.0273i  0.0058 - 0.0008i
-0.1473 + 0.0592i  0.0102 - 0.0249i
```

```
>> y_11 = j*tan(2*pi*0.19);
>> y_22 = j*tan(0.187*2*pi);
>> y_new = [y_11 0;0 y_22]
```

```
y_new =
0.0000 + 2.5257i  0.0000 + 0.0000i
0.0000 + 0.0000i  0.0000 + 2.3929i
```

```
y_amp = y_new + y_matrix
```

```
y_amp =
0.0102 + 2.4985i  0.0058 - 0.0008i
-0.1473 + 0.0592i  0.0102 + 2.3680i
```

```
>> s_amp = y2s(y_amp,z0)
```

```
s_amp =
-0.9998 - 0.0160i  0.0000 - 0.0000i
-0.0010 + 0.0004i -0.9998 - 0.0169i
```

S11 = 0.998/-179 S22 = 1/-179