

Multiband Doublet from 80 through 6 meters

80 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	44.076 mΩ/ft	
						L	504.717 nH/ft	
						G	0.008 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.044 dB/100ft	

2. Set Frequency, R, X.

MHz: 3.5 MHz KHz: Band: R: 44.53 X: -123.5

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 0.3856 λ

Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load
R	140.478	44.530
X	-663.571	-123.500
Z	678.277	131.283
SWR (True)	10.282	10.833
SWR (50)	65.840	8.749
True Zo	450.874 - j0.861 VF 0.9082	

	Loss		% of Total Loss		
	dB	W	19	1	80
Cond.	0.042	0.939			
Diel.	0.002	0.036			
C. + D.	0.043	0.974			
Refl.	0.171	3.852			
Total	0.215	4.826			
Power at Load	95.174				

Plot |Zo| Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

3.5 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	45.583 mΩ/ft	
						L	504.653 nH/ft	
						G	0.009 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.046 dB/100ft	

2. Set Frequency, R, X.

MHz: 3.75 MHz KHz: Band: R: 60.35 X: -0.32

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 0.4131 λ

Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load
R	84.684	60.350
X	-267.017	-0.320
Z	280.124	60.351
SWR (True)	7.198	7.470
SWR (50)	19.070	1.207
True Zo	450.845 - j0.830 VF 0.9083	

	Loss		% of Total Loss		
	dB	W	30	1	69
Cond.	0.043	0.979			
Diel.	0.002	0.038			
C. + D.	0.045	1.017			
Refl.	0.098	2.213			
Total	0.143	3.231			
Power at Load	96.769				

Plot |Zo| Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

3.75 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	47.042 mΩ/ft	L	504.594 nH/ft
						G	0.009 μS/ft	C	2.483 pF/ft
						Matched Loss	0.047 dB/100ft		

2. Set Frequency, R, X.

MHz: MHz MHz MHz

Band:

R and X: At Input At Load

3. Set Line Length and Input Power.

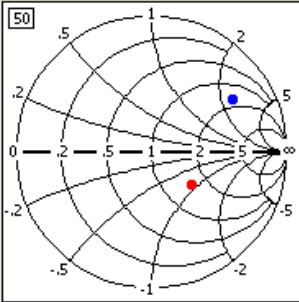
Length: Meters

Electrical Length Modulo 1/2 Wavelength:

Input Watts:

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	35	1	63
R	77.453	80.340		Cond.	0.045	1.012		
X	-43.849	122.500		Diel.	0.002	0.041		
Z	89.004	146.495		C + D.	0.046	1.053		
SWR (True)	5.871	6.056		Refl.	0.080	1.808		
SWR (50)	2.246	5.792		Total	0.126	2.862		
True Zo	450.819 - j0.802	VF	0.9083	Power at Load		97.138		



Cond. Bar: 35% (red), 1% (green), 63% (blue)

Plot |Zo| Plot VF Prime Center: (Differs from Nominal Zo)

Show: SWR Rho Return Loss

4 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	44.568 mΩ/ft	L	78.911 nH/ft
						G	0.346 μS/ft	C	30.809 pF/ft
						Matched Loss	0.390 dB/100ft		

2. Set Frequency, R, X.

MHz: MHz MHz MHz

Band:

R and X: At Input At Load

3. Set Line Length and Input Power.

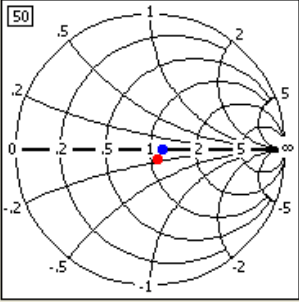
Length: Meters

Electrical Length Modulo 1/2 Wavelength:

Input Watts:

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	98	2	1
R	55.287	60.350		Cond.	0.376	8.266		
X	-7.737	-0.320		Diel.	0.007	0.165		
Z	55.826	60.351		C + D.	0.384	8.431		
SWR (True)	1.175	1.192		Refl.	-0.001	0.000		
SWR (50)	1.195	1.207		Total	0.383	8.431		
True Zo	50.613 - j0.594	VF	0.6520	Power at Load		91.569		



Cond. Bar: 98% (red), 2% (green), 1% (blue)

Plot |Zo| Plot VF Prime Center:

Show: SWR Rho Return Loss

3.5 MHz 50 ohm RG213 coax

40 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	61.923 mΩ/ft
						L	504.155 nH/ft
						G	0.016 μS/ft
						C	2.483 pF/ft
						Matched Loss	0.063 dB/100ft

2. Set Frequency, R, X.

MHz: MHz kHz Band:

R and X: At Input At Load

Matched line loss at the current Frequency: dB/100ft

3. Set Line Length and Input Power.

Length: Meters Units:

Electrical Length Modulo 1/2 Wavelength: λ ° ns

Input Watts:

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	53.629		2944.000		dB	W	22	1	77
X	27.586		1781.000		Cond.	0.059	1.311		
Z	60.308		3440.799		Diel.	0.003	0.071		
SWR (True)	8.440		8.973		C. + D.	0.062	1.382		
SWR (50)	1.701		80.433		Ref.	0.210	4.697		
True Zo	450.622 - j0.595		VF	0.9087	Total	0.272	6.079		
				Power at Load	93.921				

Plot | Zo | Plot VF Prime Center (Differs from Nominal Zo)

Show: SWR Rho Return Loss

7 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	62.358 mΩ/ft
						L	504.145 nH/ft
						G	0.017 μS/ft
						C	2.483 pF/ft
						Matched Loss	0.063 dB/100ft

2. Set Frequency, R, X.

MHz: MHz kHz Band:

R and X: At Input At Load

Matched Loss: 0.063 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: Meters Units:

Electrical Length Modulo 1/2 Wavelength: λ ° ns

Input Watts:

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	53.789		3330.000		dB	W	21	1	78
X	65.478		1599.000		Cond.	0.059	1.319		
Z	84.739		3694.009		Diel.	0.003	0.072		
SWR (True)	8.571		9.125		C. + D.	0.062	1.390		
SWR (50)	3.296		81.959		Ref.	0.221	4.928		
True Zo	450.618 - j0.591		VF	0.9088	Total	0.283	6.318		
				Power at Load	93.682				

Plot | Zo | Plot VF Prime Center (Differs from Nominal Zo)

Show: SWR Rho Return Loss

7.1 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	62.790 mΩ/ft	
						L	504.136 nH/ft	
						G	0.017 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.064 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss			
R	54.723	3712.000		dB	W	20	1	79	
X	104.202	1309.000		Cond.	0.060	1.326			
Z	117.698	3936.042		Diel.	0.003	0.073			
SWR (True)	8.703	9.280		C. + D.	0.063	1.399			
SWR (50)	5.804	83.474	Refl.	0.232	5.158				
True Zo	450.613 - j0.586		VF	0.9088		Total	0.295	6.556	
				Power at Load	93.444				

Plot |Zo| Plot VF Prime Center (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

7.2 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	63.219 mΩ/ft	
						L	504.126 nH/ft	
						G	0.017 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.064 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss			
R	56.399	4058.000		dB	W	20	1	79	
X	144.422	898.100		Cond.	0.060	1.333			
Z	155.044	4156.194		Diel.	0.003	0.073			
SWR (True)	8.852	9.455		C. + D.	0.063	1.407			
SWR (50)	9.304	85.136	Refl.	0.243	5.396				
True Zo	450.609 - j0.582		VF	0.9088		Total	0.306	6.803	
				Power at Load	93.197				

Plot |Zo| Plot VF Prime Center (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

7.3 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - W/L Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	61.294 mΩ/ft	
						L	78.395 nH/ft	
						G	0.656 μS/ft	
						C	30.809 pF/ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

Matched Loss: 0.542 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load
R	13.351	3330.000
X	-83.511	1599.000
Z	84.571	3694.009
SWR (True)	13.596	81.569
SWR (50)	14.390	81.959
True Zo	50.446 -j0.430	
VF	0.6542	

	Loss (dB)	W	% of Total Loss		
			7	1	93
Cond.	0.519	5.665			
Diel.	0.014	0.154			
C. + D.	0.534	5.819			
Refll.	7.027	76.645			
Total	7.561	82.464			
Power at Load		17.536			

Plot |Zo| Prime Center Close

Show: SWR Rho Return Loss

7.1 MHz 50 ohm RG213 coax

30 meters band

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	74.230 mΩ/ft	
						L	503.924 nH/ft	
						G	0.024 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.076 dB/100ft	

2. Set Frequency, R, X.

MHz: 10.1 MHz Band: R 123 X -743.7

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 1.1119 λ Input Watts: 100

0 1/4 1/2 110.093 ns

Plot Matched Line Loss

Results

	At Input	At Load
R	40.767	123.000
X	-154.033	-743.700
Z	159.337	753.803
SWR (True)	12.301	13.753
SWR (50)	13.608	92.789
True Zo	450.519 -j0.489	VF 0.9090

Loss	dB	W	% of Total Loss		
Cond.	0.070	1.532	14	1	85
Diel.	0.005	0.099			
C. + D.	0.075	1.631			
Refl.	0.426	9.265			
Total	0.501	10.896			
Power at Load		89.104			

Plot |Zo| Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

10.1 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	74.412 mΩ/ft	
						L	503.922 nH/ft	
						G	0.024 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.076 dB/100ft	

2. Set Frequency, R, X.

MHz: 10.15 MHz Band: R 118.1 X -714.2

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 1.1174 λ Input Watts: 100

0 1/4 1/2 110.093 ns

Plot Matched Line Loss

Results

	At Input	At Load
R	40.139	118.100
X	-128.115	-714.200
Z	134.256	723.899
SWR (True)	12.096	13.501
SWR (50)	10.128	89.155
True Zo	450.517 -j0.488	VF 0.9090

Loss	dB	W	% of Total Loss		
Cond.	0.071	1.536	14	1	85
Diel.	0.005	0.100			
C. + D.	0.075	1.636			
Refl.	0.421	9.167			
Total	0.497	10.803			
Power at Load		89.197			

Plot |Zo| Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

10.15 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	73.094 mΩ/ft	
						L	78.174 nH/ft	
						G	0.933 μS/ft	
						C	30.809 pF/ft	
						Matched Loss	0.651 dB/100ft	

2. Set Frequency, R, X.

MHz: 10.1 MHz Band: R 123 X -743.7 R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 1.5428 λ, 555.41°, 152.752 ns Input Watts: 100 Plot Matched Line Loss

Results

At Input ●		At Load ●		Loss	% of Total Loss		
					dB	W	
R	36.419	123.000		Cond.	0.620	6.097	7
X	-135.993	-743.700		Diel.	0.020	0.197	1
Z	140.785	753.803		C. + D.	0.640	6.295	93
SWR (True)	11.786	88.300		Refl.	8.205	80.661	
SWR (50)	12.176	92.789		Total	8.846	86.956	
True Zo	50.374 -j0.359	VF	0.6551	Power at Load		13.044	

Plot |Zo| Plot VF Prime Center: 50 Close

Show: SWR Rho Return Loss

10.1 MHz 50 RG213 coax

20 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	87.283 mΩ/ft	
						L	503.751 nH/ft	
						G	0.033 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.091 dB/100ft	

2. Set Frequency, R, X.

MHz: 14 MHz Band: 743 R 1413 X R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 1.5410 λ (554.77°) Input Watts: 100

Results

At Input		At Load			Loss		% of Total Loss		
R	3361.817		743.000		dB	W	24	2	74
X	-229.271		1413.000		Cond.	1.833			
Z	3369.626		1596.439		Diel.	0.140			
SWR (True)	7.498		8.112		C. + D.	1.973			
SWR (50)	67.549		68.656		Ref.	5.674			
True Zo	450.441 - j0.410		VF	0.9091	Total	0.346	7.648		
					Power at Load	92.352			

Plot |Zo| Plot VF Prime Center: 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

14 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	87.592 mΩ/ft	
						L	503.748 nH/ft	
						G	0.033 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.091 dB/100ft	

2. Set Frequency, R, X.

MHz: 14.1 MHz Band: 858 R 1528 X R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 1.5520 λ (558.73°) Input Watts: 100

Results

At Input		At Load			Loss		% of Total Loss		
R	2143.246		858.000		dB	W	23	2	75
X	-1666.793		1528.000		Cond.	1.838			
Z	2715.088		1752.412		Diel.	0.141			
SWR (True)	7.711		8.365		C. + D.	1.979			
SWR (50)	68.799		71.628		Ref.	5.866			
True Zo	450.440 - j0.408		VF	0.9091	Total	0.355	7.845		
					Power at Load	92.155			

Plot |Zo| Plot VF Prime Center: 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

14.1 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

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Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	87.900 mΩ/ft	
						L	503.744 nH/ft	
						G	0.033 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.091 dB/100ft	

2. Set Frequency, R, X.

MHz: 14.2 MHz Band: R X

1000 1650

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 1.5630 λ 562.69 °

110.073 ns Input Watts: 100

Results

At Input		At Load		Loss	% of Total Loss
R	X	Z	SWR		
1065.103	-1589.533	1913.390	7.917	Cond. 0.083	23
1000.000	1650.000	1929.378	8.611	Diel. 0.006	2
				C. + D. 0.090	75
				Refl. 0.274	
				Total 0.364	
				Power at Load 91.962	

True Zo: 450.438 - j0.407 VF: 0.9091

 Prime Center: 50 (Differs from Nominal Zo)

Show: SWR Rho Return Loss

14.2 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	88.207 mΩ/ft	
						L	503.741 nH/ft	
						G	0.034 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.092 dB/100ft	

2. Set Frequency, R, X.

MHz: 14.3 MHz Band: R X

1175 1774

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 1.5740 λ 566.66 °

110.073 ns Input Watts: 100

Results

At Input		At Load		Loss	% of Total Loss
R	X	Z	SWR		
585.484	-1276.057	1403.963	8.104	Cond. 0.084	23
1175.000	1774.000	2127.840	8.837	Diel. 0.006	2
				C. + D. 0.090	76
				Refl. 0.282	
				Total 0.372	
				Power at Load 91.783	

True Zo: 450.437 - j0.405 VF: 0.9091

 Prime Center: 50 (Differs from Nominal Zo)

Show: SWR Rho Return Loss

14.3 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	88.360 mΩ/ft
						L	503.739 nH/ft
						G	0.034 μS/ft
						C	2.483 pF/ft

2. Set Frequency, R, X.

MHz: 14.35 MHz Band: R 1279 X 1837

At Input At Load

Matched Loss: 0.092 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 1.5795 λ

Input Watts: 100

568.64 ° 110.073 ns

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	454.248		1279.000		dB	W	22	2	76
X	-1138.712		1837.000		Cond.	0.084	1.849		
Z	1225.972		2238.395		Diel.	0.006	0.143		
SWR (True)	8.197		8.949		C + D.	0.090	1.993		
SWR (50)	66.271		78.375		Refl.	0.286	6.315		
True Zo	450.436 -j0.404	VF	0.9091	Total	0.377	8.307			
				Power at Load		91.693			

 Prime Center: 50 (Differs from Nominal Zo)

Show: SWR Rho Return Loss

14.35 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	86.659 mΩ/ft
						L	77.994 nH/ft
						G	1.312 μS/ft
						C	30.809 pF/ft

2. Set Frequency, R, X.

MHz: 14.2 MHz Band: R 1000 X 1650

At Input At Load

Matched Loss: 0.777 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 2.1666 λ

Input Watts: 100

779.96 ° 152.575 ns

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	6.759		1000.000		dB	W	9	1	91
X	-30.228		1650.000		Cond.	0.736	7.340		
Z	30.975		1929.378		Diel.	0.028	0.281		
SWR (True)	9.897		74.759		C + D.	0.764	7.621		
SWR (50)	10.138		74.487		Refl.	7.903	78.788		
True Zo	50.315 -j0.301	VF	0.6559	Total	8.667	86.409			
				Power at Load		13.591			

 Prime Center: 50

Show: SWR Rho Return Loss

14.2 MHz 50 ohm RG213 coax

Multiband Doublet from 80 through 6 meters

17 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions
Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	99.083 mΩ/ft	
						L	503.634 nH/ft	
						G	0.042 μS/ft	
						C	2.483 pF/ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

Matched Loss: 0.104 dB/100ft
Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

At Input		At Load		Loss	% of Total Loss			
R	X	Z	SWR (True)		dB	W	25	2
223.011	-676.864	712.656	6.914	0.094	2.074			
168.800	-593.000	616.557	7.514	0.008	0.180			
45.750	45.315			0.102	2.254			
				0.275	6.060			
				0.377	8.314			
					91.686			

True Zo: VF:

Plot |Zo| Plot VF Prime Center: (Differs from Nominal Zo) Close

Show: SWR Rho Return Loss

18.068 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions
Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	99.355 mΩ/ft	
						L	503.631 nH/ft	
						G	0.043 μS/ft	
						C	2.483 pF/ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

Matched Loss: 0.104 dB/100ft
Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

At Input		At Load		Loss	% of Total Loss			
R	X	Z	SWR (True)		dB	W	26	2
173.493	-546.455	573.334	6.635	0.094	2.083			
160.000	-548.500	571.360	7.186	0.008	0.181			
38.156	41.095			0.103	2.265			
				0.260	5.737			
				0.362	8.002			
					91.998			

True Zo: VF:

Plot |Zo| Plot VF Prime Center: (Differs from Nominal Zo) Close

Show: SWR Rho Return Loss

18.168 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - W/L Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	97.746 mΩ/ft
						L	77.884 nH/ft
						G	1.669 μS/ft
						C	30.809 pF/ft
						Matched Loss	0.881 dB/100ft

2. Set Frequency, R, X.

MHz: 18.068 MHz KHz: Band: R: 168.8 X: -593

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

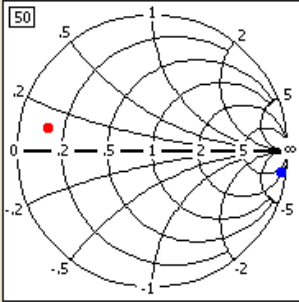
Electrical Length Modulo 1/2 Wavelength: 2.7548 λ, 991.72°, 152.467 ns

Input Watts: 100 Plot Matched Line Loss

Results

At Input ●		At Load ●		Loss	% of Total Loss			
R	X	Z	SWR (True)		dB	W	Cond.	Diel.
6.224	5.346	8.204	8.210	0.831	9.127	11	1	88
168.800	-593.000	616.557	44.243	0.036	0.394			
8.127			45.315	0.867	9.521			
				6.611	72.603			
				7.477	82.124			
					17.876			

True Zo: 50.279 -j0.266 VF: 0.6563



Plot |Zo| Plot VF Prime Center: 50

Show: SWR Rho Return Loss

Close

18.068 MHz 50 ohm RG213 coax

15 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	106.782 mΩ/ft	
						L	503.571 nH/ft	
						G	0.049 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.113 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss		
R	99.589	361.900		dB	W	38	4	58
X	-47.058	698.500		Cond.	0.101	2.264		
Z	110.147	786.685		Diel.	0.009	0.212		
SWR (True)	4.572	4.842		C + D.	0.111	2.476		
SWR (50)	2.546	34.310		Ref.	0.154	3.442		
True Zo	450.361 - j0.328		VF	0.9093		Total	0.265 5.918	
			Power at Load	94.082				

Prime Center (Differs from Nominal Zo)

Show: SWR Rho Return Loss

21 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	107.035 mΩ/ft	
						L	503.569 nH/ft	
						G	0.050 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.113 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss		
R	95.754	401.400		dB	W	37	3	60
X	-0.581	757.100		Cond.	0.102	2.267		
Z	95.756	856.926		Diel.	0.010	0.213		
SWR (True)	4.703	4.991		C + D.	0.111	2.480		
SWR (50)	1.915	36.685		Ref.	0.164	3.649		
True Zo	450.360 - j0.327		VF	0.9093		Total	0.275 6.129	
			Power at Load	93.871				

Prime Center (Differs from Nominal Zo)

Show: SWR Rho Return Loss

21.1 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	107.287 mΩ/ft	
						L	503.567 nH/ft	
						G	0.050 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.113 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	36	3	61
R	94.238	446.500		Cond.	0.102	2.270		
X	44.952	817.500		Diel.	0.010	0.214		
Z	104.410	931.487		C. + D.	0.111	2.483		
SWR (True)	4.831	5.136		Ref.	0.173	3.854		
SWR (50)	2.433	38.952		Total	0.284	6.338		
True Zo	450.359 - j0.326		VF	0.9093		Power at Load	93.662	

Cond. Bar: 36% (red), Diel. Bar: 3% (green), Refl. Bar: 61% (blue)

Prime Center: (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

21.2 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	107.539 mΩ/ft	
						L	503.565 nH/ft	
						G	0.050 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.113 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	35	3	62
R	94.824	498.200		Cond.	0.102	2.272		
X	90.520	879.700		Diel.	0.010	0.214		
Z	131.094	1010.977		C. + D.	0.112	2.487		
SWR (True)	4.954	5.277		Ref.	0.182	4.056		
SWR (50)	3.895	41.107		Total	0.294	6.543		
True Zo	450.358 - j0.325		VF	0.9093		Power at Load	93.457	

Cond. Bar: 35% (red), Diel. Bar: 3% (green), Refl. Bar: 62% (blue)

Prime Center: (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

21.3 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	107.790 mΩ/ft	
						L	503.564 nH/ft	
						G	0.050 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.114 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

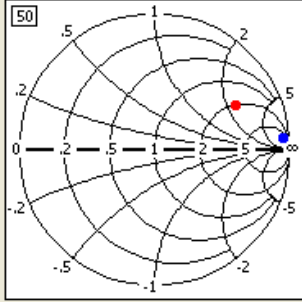
Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load	Loss	% of Total Loss	
					dB
R	98.003	498.200	Cond.	0.102	2.277
X	121.969	879.700	Diel.	0.010	0.215
Z	156.464	1010.977	C. + D.	0.112	2.493
SWR (True)	4.953	5.277	Ref.	0.184	4.085
SWR (50)	5.318	41.107	Total	0.296	6.578
True Zo	450.357 -j0.325		VF	0.9093	
			Power at Load	93.422	



Cond.	Diel.	C. + D.	Ref.	Total
35	3	62		

Prime Center: (Differs from Nominal Zo) Close

Show: SWR Rho Return Loss

21.4 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	107.915 mΩ/ft	
						L	503.563 nH/ft	
						G	0.050 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.114 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

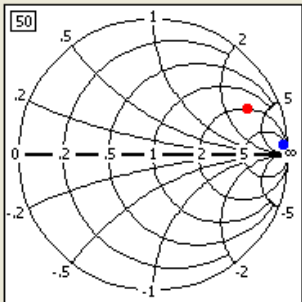
Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load	Loss	% of Total Loss	
					dB
R	99.603	590.000	Cond.	0.102	2.277
X	160.899	975.800	Diel.	0.010	0.216
Z	189.233	1140.301	C. + D.	0.112	2.492
SWR (True)	5.131	5.481	Ref.	0.196	4.348
SWR (50)	7.560	44.140	Total	0.308	6.840
True Zo	450.357 -j0.324		VF	0.9093	
			Power at Load	93.160	



Cond.	Diel.	C. + D.	Ref.	Total
33	3	64		

Prime Center: (Differs from Nominal Zo) Close

Show: SWR Rho Return Loss

21.45 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - W/L Conversions
Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	106.125 mΩ/ft	
						L	77.816 nH/ft	
						G	1.968 μS/ft	
						C	30.809 pF/ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R and X: At Input At Load

Matched Loss: 0.960 dB/100ft
 Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input ●	At Load ●
R	6.660	498.200
X	-3.383	879.700
Z	7.470	1010.977
SWR (True)	7.561	41.251
SWR (50)	7.542	41.107
True Zo	50.257 -j0.244	VF 0.6566

	Loss	% of Total Loss
	dB	W
Cond.	0.903	9.983
Diel.	0.042	0.468
C. + D.	0.945	10.450
Ref.	6.450	71.329
Total	7.394	81.780
Power at Load	18.220	

	12	1	87
Cond.			
Diel.			
Ref.			

Plot |Zo|
Plot VF
Prime Center
Close

Show: SWR Rho Return Loss

21.3 MHz 50 ohm RG213 coax

12 meters band

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	116.212 mΩ/ft
						L	503.506 nH/ft
						G	0.058 μS/ft
						C	2.483 pF/ft

2. Set Frequency, R, X.

MHz: 24.89 MHz Band: R 465.9 X -1146

R and X: At Input At Load

Matched Loss: 0.124 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 2.7391 λ 986.07 ° 110.047 ns

Input Watts: 100

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	66.038		465.900		dB	W	23	2	75
X	118.160		-1146.000		Cond.	0.110	2.402		
Z	135.362		1237.085		Diel.	0.011	0.245		
SWR (True)	7.307		8.124		C. + D.	0.122	2.647		
SWR (50)	6.144		65.788		Refl.	0.367	7.985		

True Zo: 450.331 - j0.298 VF: 0.9093

Power at Load: 89.367

Cond. Bar: ~10% Diel. Bar: ~1% Refl. Bar: ~89%

 Prime Center: 50 (Differs from Nominal Zo)

Show: SWR Rho Return Loss

24.89 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables	
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	116.444 mΩ/ft
						L	503.504 nH/ft
						G	0.059 μS/ft
						C	2.483 pF/ft

2. Set Frequency, R, X.

MHz: 24.99 MHz Band: R 416.9 X -1084

R and X: At Input At Load

Matched Loss: 0.124 dB/100ft

Preferred Units: Feet Meters

3. Set Line Length and Input Power.

Length: 30 Meters Units: Meters

Electrical Length Modulo 1/2 Wavelength: 2.7501 λ 990.03 ° 110.047 ns

Input Watts: 100

Results

At Input ●		At Load ●			Loss		% of Total Loss		
R	69.921		416.900		dB	W	23	2	75
X	162.449		-1084.000		Cond.	0.111	2.406		
Z	176.858		1161.405		Diel.	0.011	0.246		
SWR (True)	7.309		8.128		C. + D.	0.122	2.652		
SWR (50)	9.557		64.814		Refl.	0.369	8.044		

True Zo: 450.331 - j0.298 VF: 0.9093

Power at Load: 89.304

Cond. Bar: ~10% Diel. Bar: ~1% Refl. Bar: ~89%

 Prime Center: 50 (Differs from Nominal Zo)

Show: SWR Rho Return Loss

24.99 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	114.718 mΩ/ft	
						L	77.756 nH/ft	
						G	2.299 μS/ft	
						C	30.809 pF/ft	
						Matched Loss	1.042 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R: X:

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units:

Electrical Length Modulo 1/2 Wavelength:

Input Watts: Plot Matched Line Loss

Results

	At Input	At Load	Loss		% of Total Loss		
			dB	W	10	1	89
R	7.362	465.900	Cond.	0.976	9.117		
X	15.212	-1146.000	Diel.	0.049	0.461		
Z	16.900	1237.085	C. + D.	1.025	9.578		
SWR (True)	7.535	64.763	Refl.	8.481	79.218		
SWR (50)	7.433	65.788	Total	9.507	88.797		
True Zo	50.238 -j0.225	VF	0.6569	Power at Load	11.203		

Plot |Zo| Plot VF Prime Center

Show: SWR Rho Return Loss Close

24.89 MHz 50 ohm RG213 coax

10 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	123.233 mΩ/ft	
						L	503.464 nH/ft	
						G	0.066 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.132 dB/100ft	

2. Set Frequency, R, X.

MHz: 28 MHz KHz: Band: R: 202.4 X: 253.9

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 3.0812 λ 1109.23° 110.043 ns Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss		
R	508.196	202.400		dB	W	54	6	40
X	537.322	253.900		Cond.	0.117	2.628		
Z	739.580	324.701		Diel.	0.013	0.284		
SWR (True)	2.938	3.057		C + D.	0.130	2.912		
SWR (50)	21.578	10.571	Refl.	0.086	1.925			
True Zo	450.312 - j0.279		VF	0.9094	Total	0.215	4.838	
					Power at Load	95.162		

Plot | Zo | Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

28 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	125.407 mΩ/ft	
						L	503.451 nH/ft	
						G	0.068 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.134 dB/100ft	

2. Set Frequency, R, X.

MHz: 29 MHz KHz: Band: R: 456.3 X: 689.9

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 3.1912 λ 1148.83° 110.041 ns Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load		Loss		% of Total Loss		
R	235.247	456.300		dB	W	44	5	51
X	-421.749	689.900		Cond.	0.119	2.658		
Z	482.922	827.147		Diel.	0.013	0.293		
SWR (True)	3.852	4.075		C + D.	0.132	2.950		
SWR (50)	19.990	30.064	Refl.	0.138	3.071			
True Zo	450.307 - j0.274		VF	0.9094	Total	0.270	6.021	
					Power at Load	93.979		

Plot | Zo | Plot VF Prime Center 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

29 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	126.907 mΩ/ft	L	503.443 nH/ft
						G	0.070 μS/ft	C	2.483 pF/ft
						Matched Loss	0.136 dB/100ft		

2. Set Frequency, R, X.

MHz: 29.7 MHz Band: R 893.3 X 1042

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 3.2682 λ

Input Watts: 100 Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss			
				dB	W	36	4	60	
R	98.684	893.300	Cond.	0.120	2.671				
X	-60.679	1042.000	Diel.	0.013	0.298				
Z	115.847	1372.497	C. + D.	0.134	2.968				
SWR (True)	4.648	4.990	Refl.	0.198	4.383				
SWR (50)	2.879	42.207	Total	0.332	7.352				
True Zo	450.303 - j0.270		VF	0.9094		Power at Load	92.648		

Prime Center: 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

29.7 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	121.672 mΩ/ft	L	77.714 nH/ft
						G	2.587 μS/ft	C	30.809 pF/ft
						Matched Loss	1.109 dB/100ft		

2. Set Frequency, R, X.

MHz: 28 MHz Band: R 204.4 X 253.9

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Electrical Length Modulo 1/2 Wavelength: 4.2644 λ

Input Watts: 100 Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss			
				dB	W	28	2	71	
R	10.908	204.400	Cond.	1.036	15.974				
X	-1.501	253.900	Diel.	0.056	0.857				
Z	11.011	325.952	C. + D.	1.091	16.830				
SWR (True)	4.606	10.556	Refl.	2.656	40.973				
SWR (50)	4.588	10.546	Total	3.747	57.804				
True Zo	50.224 - j0.211		VF	0.6571		Power at Load	42.196		

Prime Center: 50 Close

Show: SWR Rho Return Loss

28 MHz 50 ohm RG213 coax

Multiband Doublet from 80 through 6 meters

6 meters band

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	164.558 mΩ/ft	L	503.288 nH/ft
						G	0.117 μS/ft	C	2.483 pF/ft
						Matched Loss	0.182 dB/100ft		

2. Set Frequency, R, X.

MHz: 50 MHz Band: R 160.6 X -334.8

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 5.5012 λ 1980.42° 110.023 ns Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load
R	171.795	160.600
X	-325.159	-334.800
Z	367.753	371.327
SWR (True)	4.123	4.483
SWR (50)	15.973	17.425

True Zo: 450.234 -j0.200 VF: 0.9095

	Loss		% of Total Loss		
	dB	W	39	6	56
Cond.	0.156	3.435			
Diel.	0.023	0.497			
C. + D.	0.179	3.931			
Refl.	0.227	4.982			
Total	0.405	8.914			
Power at Load		91.086			

Plot |Zo| Plot VF Prime Center: 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

50 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables			
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	166.192 mΩ/ft	L	503.283 nH/ft
						G	0.120 μS/ft	C	2.483 pF/ft
						Matched Loss	0.184 dB/100ft		

2. Set Frequency, R, X.

MHz: 51 MHz Band: R 158.8 X 29.02

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: 30 Meters Units: Electrical Length Modulo 1/2 Wavelength: 5.6112 λ 2020.02° 110.023 ns Input Watts: 100

Plot Matched Line Loss

Results

	At Input	At Load
R	286.861	158.800
X	335.206	29.020
Z	441.195	161.430
SWR (True)	2.709	2.849
SWR (50)	13.672	3.293

True Zo: 450.232 -j0.198 VF: 0.9095

	Loss		% of Total Loss		
	dB	W	55	8	37
Cond.	0.158	3.516			
Diel.	0.023	0.514			
C. + D.	0.181	4.030			
Refl.	0.105	2.335			
Total	0.286	6.365			
Power at Load		93.635			

Plot |Zo| Plot VF Prime Center: 50 (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

51 MHz 450 ohm window line

Multiband Doublet from 80 through 6 meters

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Generic 450 ohm Window	450	0.91	0.009651	0.022439	0.000459	R	167.811 mΩ/ft	
						L	503.278 nH/ft	
						G	0.122 μS/ft	
						C	2.483 pF/ft	
						Matched Loss	0.186 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units: Electrical Length Modulo 1/2 Wavelength: Input Watts:

0 1/4 1/2 110.022 ns Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	52	8	40
R	332.936	291.800		Cond.	0.159	3.543		
X	-426.481	407.900		Diel.	0.024	0.523		
Z	541.047	501.527		C + D.	0.183	4.066		
SWR (True)	2.966	3.141		Refl.	0.121	2.692		
SWR (50)	17.679	17.354		Total	0.304	6.758		
True Zo	450.229 - j0.196		VF	0.9095		Power at Load	93.242	

Cond. Dielect. Refl. bar chart showing loss distribution.

Plot |Zo| Plot VF Prime Center: (Differs from Nominal Zo) Make Equal Close

Show: SWR Rho Return Loss

52 MHz 450 ohm window line

Enter values directly, or click spinners, or click and hold spinners.

Freq - VF - Len - WL Conversions Print

1. Choose Transmission Line, Modify Parameters if Desired.

Type	Nom. Zo	Nom. VF	K0	K1	K2	T-Line Model Internal Variables		
Radioware RG-213	50	0.66	0.025189	0.199693	0.002006	R	164.198 mΩ/ft	
						L	77.535 nH/ft	
						G	4.711 μS/ft	
						C	30.809 pF/ft	
						Matched Loss	1.524 dB/100ft	

2. Set Frequency, R, X.

MHz: MHz KHz Band

R and X: At Input At Load

3. Set Line Length and Input Power.

Length: Units: Electrical Length Modulo 1/2 Wavelength: Input Watts:

0 1/4 1/2 152.124 ns Plot Matched Line Loss

Results

At Input		At Load		Loss		% of Total Loss		
				dB	W	61	4	34
R	22.672	158.800		Cond.	1.399	25.056		
X	-0.476	29.020		Diel.	0.101	1.809		
Z	22.677	161.430		C + D.	1.500	26.866		
SWR (True)	2.213	3.285		Refl.	0.782	14.014		
SWR (50)	2.206	3.293		Total	2.283	40.880		
True Zo	50.166 - j0.154		VF	0.6578		Power at Load	59.120	

Cond. Dielect. Refl. bar chart showing loss distribution.

Plot |Zo| Plot VF Prime Center: Close

Show: SWR Rho Return Loss

51 MHz 50 ohm RG213 coax