

RF-CALC.WKS....Version 1.1

Provided by:

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Use it, play
 with it..if
 you add to
 it, please
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FEEDLINE LOSS calculation

Help=====

Enter Feedline dB loss /100 ft.....
 Enter Feedline length (ft).....

Total line loss
 2 =====>
 250 efficiency
 =====>

DECIBEL (dB) CONVERSION

For POWER

Enter Decibels.....
 Enter Ratio.....

3 =====>
 20 =====>

For VOLTAGE

Enter Decibels.....
 Enter Ratio.....

6 =====>
 10 =====>

ERP effective-radiated-power

Enter transmitter watts output.....
 Enter feedline loss in dB.....

25.0 ERP
 1.5 =====>

Enter connector or Misc. loss in dB. 0.1 =====>
 Enter antenna gain in dB..... 6

PATH LOSS (free space)

Between isotropic
 Enter frequency in Mhz..... 450 =====>
 Enter path mileage..... 12 Between dipole
 =====>

DISH GAIN (standard parabolic antenna)

Gain
 Enter frequency in Ghz..... 4 dBi =>
 Enter dish diameter in feet..... 9 dBd =>
 3dB pt>

RF LINK SYSTEM calculation

help=====

Enter frequency in Ghz..... 0.95 Total path loss
 Enter path length in miles..... 12 =====>
 Enter 6 dB for grazing path

0 for proper fresnel clearance.... 0 Radiated power
 Transmit site =====>

Enter transmitter output watts..... 8 =====>
 Enter antenna gain in dBi..... 22.0

Enter feedline loss in dB..... 2 Received signal
 Enter misc losses (connectors etc)dB 3.5 =====>

Receive site =====>

Enter required rf signal for
 proper S/N ratio in microvolts..... 14.1 FADE MARGIN
 (dBm): -84.01 =====>

Enter antenna gain in dBi..... 22

Enter feedline loss in dB..... 5.7
 Enter misc losses (connectors etc)dB 3.5

PATH ANALYSIS fresnel zone calc

Enter path length in miles..... 12 Proper clearance
 Enter frequency in mhz..... 950 =====>

Enter distance from transmit
 site to main obstruction in miles.. 8
 4 6 dB loss clearance

```

=====>
-          -          -          -          -          -
REACTANCE          (inductive & capacitive)

Enter inductance in microhenries.....          0.54          =====>
Enter frequency in mhz.....          1          =====>
Enter capacitance in picofarads.....          19          =====>
L-C combina
resonates at

-          -          -          -          -          -
DIPOLE (half-wavelength)

Enter frequency in mhz.....          27.00          =====>
Enter conductor diameter in inches...          0.10          =====>

```

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help

-

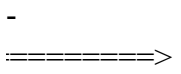
J23

J50

J56

J75

J92



s

5dB

31.62%

-

2.00ratio
13.01decibels

2.00ratio
20.00decibels

-

69watts

-

-

-

Coaxial line loss chart...dB lo

Freq	foam	
	RG-58/u	RG-59/u
.5 mhz	0.25	0.24
1	0.3	0.29
5	0.75	0.71
50	2.7	2.4
100	3.5	3.4
146	5.4	4.1
450	13	7.2
950	-	11
2 ghz	-	-
4 ghz	-	-
6 ghz	-	-

	-11.62dBk			
-	-	-	-	-
typic radiators	111.2dB			
es	106.9dB			
-	-	-	-	-
	38.3dB			This antenna gain algorithm w
	36.2dB			for the standard 55% feed effi
	1.9degrees			3 db beamwidth is also display
-	-	-	-	-
=====>				Required rcvr RF signal (typic
ss	117.7dB			Video..
ver	357.3watts			Composite stereo audio
	55.5dBm			Discrete hi-fi audio
				Voice-grade audio
nal				Path loss adjustment (approxii
	759uVOLTS			Proper fresnel clearance
	-49.4dBm	79.388892		Slightly grazing path
		0.00075864817		Slightly obstructed
GIN		1.1510941E-08		
	34.6dB	-57.002659		Fade margin usually 15-35 dB
		3.9762E-12		
		-84.005318		Allow .1 to .25 dB per connec
-	-	-	-	dB is 2.15 dB greater than dB
nce				This is required clearance above trees, buildi
	69.7feet	69.723383		
arance				

	18.8feet			
-	-	-	-	-
ctance				
	3.4ohms	0.00000054		
actance		1000000		
	8376.6ohms	1.9E-11		
tion				
	49.69mhz			
-	-	-	-	-
t		18.222222	Length does not include proxi	
		l/d		
hes	17.72feet	2186.6667	<-----Length	
		97.222894	_____	
	212.59inches	17.716172		
				50 - 65
-	-			

d as-is

Loss per 100 feet

foam
RG-8/u

foam
1/2"

foam
7/8"

air
1-5/8"

air
3"

0.1	0.055	0.03	0.016	0.01
0.13	0.08	0.038	0.02	0.014
0.3	0.16	0.08	0.045	0.03
1.2	0.48	0.26	0.15	0.093
1.8	0.68	0.37	0.205	0.145
2.15	0.8	0.45	0.26	0.17
4.3	1.55	0.87	0.46	0.34
6.9	2.6	1.3	0.7	0.52
-	3.5	1.9	1.05	-
-	5.2	2.8	-	-
-	6.8	-	-	-

- - - - -

-
within .3 db
accuracy.
used

-
cal)

1000 microvolts
112
16
4

mate)

0 dB
6 dB
20 dB

).

tor.
id.

- - - - -

ings, etc.,

- - - - -

- - - - -

mity effect

h----->

ohms