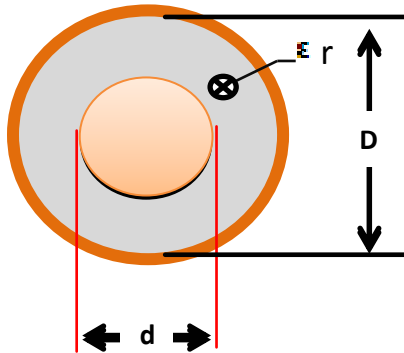


Coax Line Information



IMPEDANCE (Zo)
$Z_o = \frac{138}{\sqrt{\epsilon_r}} \log \frac{D}{d}$
$\epsilon_r = \text{INSULATOR DIELECTRIC CONSTANT}$

HIGHER MODE CUTOFF
$f_c = \frac{11802.8}{(\pi/2) (D+d) \sqrt{\epsilon_r}}$
$[D, d \text{ in inches}]$

Transmission Line Formulas

WAVELENGTH IN FREE SPACE

$$\lambda_o (\text{inches}) = \frac{11802.8}{F (\text{MHz})}$$

REFLECTED POWER

$$\frac{P_{\text{ref}}}{P_{\text{inc}}} = |r|^2 = \left(\frac{r - 1}{r + 1} \right)^2$$

REFLECTION COEFFICIENT

$$r = \frac{Z_r - Z_o}{Z_r + Z_o}$$

Z_r = Load Impedance
 Z_o = Line Impedance

IMPEDANCE AT POINT / ON LINE

$$Z_{\text{load}} = Z_o \frac{Z_r + j Z_o \tan \beta l}{Z_o + j Z_r \tan \beta l}$$

VSWR

$$r = \frac{1 + |\Gamma|}{1 - |\Gamma|}$$

REFLECTION COEFFICIENT OF NORMALIZED REACTANCE

$$|\Gamma| = \frac{|X|}{\sqrt{X^2 + 4}}$$

TYPE	IMPEDANCE (OHMS)	OUTER O.D. (INCHES)	CONDUCTOR I.D. (INCHES)	INNER CONDUCTOR		WEIGHT (LBS/FT)	INNER CONDUCTOR CUTBACK	
				O.D. (INCHES)	I.D. (INCHES)		EIA	NO FLANGE
7/8	50	.875	.785	.341	.290	0.6	.50	—
1 5/8	50	1.625	1.527	.664	.588	1.4	.59	.41
3 1/8	50	3.125	3.027	1.315	1.231	3.0	.92	.66
4 1/16	50	4.062	3.935	1.711	1.631	5.5	1.28	1.03
6 1/8	50	6.125	5.981	2.600	2.520	7.3	1.22	—
6 1/8	75	6.125	5.981	1.711	1.631	7.0	1.22	—
8 3/16	75	8.150	8.000	2.293	2.229	9.6	1.59	—
9 3/16	50	9.166	9.000	3.910	3.812	13.5	1.59	—
9 3/16	75	9.166	9.000	2.580	2.516	11.5	1.59	—