OPEN-WIRE IMPEDANCE, ATTENUATION, PHASE
8" and 12" Spacing - Side Circuits
104 and 128-Mil Copper-Steel (30%)

8" Spacing - 104 Mil

Freq.	Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	α	db/mi	β	B
200	1309	1150	1742	41.3	.0132	.115	.0150	.0048
300	1135	920	1461	39.0	.0157	.136	.0189	.0060
500	911	665	1128	36.1	.0191	.166	.0261	.0083
1000	744	410	849	28.8	.0235	.204	.0427	.0136
1500	688	298	750	23.4	.0257	.223	.0591	.0188
2000	656	235	699	19.7	.0271	.235	.0755	.0240
2500	643	195	672	16.9	.0280	.244	.0921	.0293
3000	633	167	654	14.9	.0289	.251	.1090	.0347

12" Spacing - 104 Mil

Freq.	Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	α	db/mi	β	B
200	1365	1188	1810	41.0	.0126	.110	.0145	.0046
300	1170	948	1506	39.0	.0149	.129	.0183	.0058
500	956	682	1174	35.5	.0182	.158	.0254	.0080
1000	788	417	892	27.9	.0222	.193	.0419	.0133
1500	732	302	792	22.4	.0241	.210	.0584	.0186
2000	703	238	742	18.7	.0253	.220	.0748	.0238
2500	688	197	715	16.0	.0262	.227	.0915	.0291
3000	679	168	699	13.9	.0269	.234	.1080	.0344

8" Spacing - 128 Mil

Freq.	Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	α	db/mi	β	B
200	1080	898	1405	39.7	.0108	.093	.0129	.0041
300	928	712	1170	37.5	.0125	.108	.0167	.0053
500	783	506	932	32.9	.0152	.132	.0234	.0074
1000	669	308	737	24.7	.0184	.160	.0399	.0127
1500	630	220	667	19.2	.0198	.172	.0564	.0180
2000	612	172	636	15.7	.0206	.179	.0731	.0232
2500	601	141	617	13.2	.0212	.184	.0898	.0286
3000	595	119	606	11.3	.0215	.186	.1070	.0341

12" Spacing - 128 Mil

Freq.	Impedance				Attenuation		Phase Shift	
	R	X	Z	Angle	α	db/mi	β	B
200	1132	929	1464	39.4	.0103	.089	.0125	.0040
300	975	735	1221	37.0	.0119	.103	.0160	.0051
500	828	519	977	32.1	.0143	.124	.0228	.0073
1000	714	312	779	23.6	.0173	.149	.0394	.0125
1500	676	223	712	18.3	.0185	.160	.0559	.0178
2000	658	173	680	14.7	.0189	.156	.0715	.0228
2500	648	142	663	12.4	.0196	.170	.0894	.0288
3000	642	120	653	10.6	.0197	.171	.1060	.0337

Note: All reactances are negative. Angles are in degrees and negative. Values based on dry weather, average temperature conditions.

β = Phase shift in radians per circuit mile.
B = Phase shift in cycles per circuit mile, out and back = $\frac{2\beta}{2\pi}$