

**SECONDARY CONSTANTS OF NON-LOADED CABLE (AT 68° F.)
26 GAUGE ST, AST**

Freq. Cyc./Sec.	Propagation Constant — Per Mile			Characteristic Impedance			
	Attenuation		Phase Shift β Radians	r Ohms	x Ohms (Neg.)	Z Ohms	Angle Deg. (Neg.)
	α Nepers	db					
50	.06911	.6003	.06901	3,190	3,181	4,505	44.9
100	.0977	.8486	.09763	2,257	2,249	3,186	44.9
200	.1381	1.199	.1382	1,597	1,589	2,253	44.9
300	.1690	1.468	.1693	1,304	1,297	1,839	44.8
500	.2179	1.892	.2189	1,012	1,003	1,425	44.8
1,000	.3071	2.668	.3106	718	707	1,007	44.5
2,000	.4315	3.748	.4421	511	496	712	44.1
3,000	.5251	4.561	.5450	421	402	582	43.7
5,000	.6691	5.812	.7130	330	307	451	42.9
8,000	.8299	7.208	.9200	267	238	357	41.7
10,000	.9158	7.954	1.0424	242	210	320	41.0
15,000	1.0852	9.426	1.3201	204	166	263	39.1

Note: db = $\alpha \times 8.686$

**SECONDARY CONSTANTS OF NON-LOADED CABLE (AT 55° F.)
THROUGH CARRIER FREQUENCIES
26 GAUGE ST, AST**

Freq. Kc/Sec.	PROPAGATION CONSTANT (PER MILE)					PHASE DELAY Sec./Mi. $\times 10^{-6}$	VELOCITY OF PROPAGATION Mi./Sec. $\times 10^3$
	Attenuation		Phase Shift β Radians	Variation* per Degree F.			
	α Nepers	db		db	Radians		
0.1	.096	0.8	.096			152.60	6.6
0.2	.135	1.2	.135			107.75	9.3
0.5	.213	1.9	.215			68.32	14.6
1	.301	2.6	.304	.0034	.00038	48.42	20.7
2	.422	3.7	.433	.0048	.00055	34.44	29.0
5	.654	5.7	.698	.0076	.00086	22.23	45.0
10	.893	7.8	1.02	.0112	.00117	16.26	61.5
15	1.06	9.2	1.30	.0140	.00140	13.74	72.8
20	1.18	10.3	1.55	.0162	.00155	12.31	81.3
50	1.56	13.5	2.95	.0246	.00205	9.40	106.5
100	1.81	15.7	5.33	.0301	.00240	8.48	117.9
200	2.16	18.8	10.2	.0326	**	8.11	123.2
250	2.33	20.2	12.6	.0330		8.00	125.0
500	3.21	27.9	24.4	.0367		7.78	128.5
1,000	4.63	40.2	47.6	.0459		7.58	132.0
2,000	6.75	58.6	92.7	.0755		7.38	135.6
4,000	9.76	84.8	181.8	.1538		7.23	138.2
5,000	11.11	96.5	226.0	.1935		7.19	139.2
10,000	16.59	144.1	445.5	.4080		7.09	141.1

Freq. Kc/Sec.	CHARACTERISTIC IMPEDANCE					
	r Ohms	x Ohms (Neg.)	Z Ohms	Angle Degrees (Neg.)	Variation* per Degree F.	
					r Ohms	x Ohms
0.1	2,205	2,197	3,113	44.9		
0.2	1,562	1,554	2,203	44.9		
0.5	990	981	1,394	44.7		
1	705	692	988	44.5	+.621	-.665
2	501	486	698	44.1	+.445	-.478
5	324	301	442	42.9	+.272	-.311
10	238	206	315	40.9	+.183	-.224
15	201	162	258	38.9	+.140	-.185
20	181	136	226	36.9	+.112	-.167
50	138	71	155	27.2	+.038	-.116
100	125	41	132	18.2	+.003	-.075
200	120	24	122	11.3	**	**
250	119	21	121	10.0		
500	115	13	116	6.4		
1,000	112	7	112	3.6		
2,000	109	4	109	2.1		
4,000	107	2	107	1.1		
5,000	106	1	106	0.5		
10,000	105		105			

* Average values between 34° and 76° F.

** Due to the importance of the effect of variation of inductance on phase change and impedance at high frequency, and the uncertainty of the variation of inductance with temperature, the phase and impedance variations above 100 kc are not given.