

SECONDARY CONSTANTS OF LOADED CABLE  
24 GAUGE DSM, FSM  
H44 LOADING

At 68° F. \*

Freq. Hertz	Propagation Constant Per Mile			Mid-Section Impedance			
	Attenuation		Phase Shift $\beta$ Radians	R Ohms	X Ohms (Neg.)	Z Ohms	Angle Degrees (Neg.)
	$\alpha$ Nepers	dB					
1	.00929	.081	.00794	17306	14766	22749	40.5
50	.05945	.516	.06194	2347	2236	3242	43.6
100	.08214	.713	.08962	1697	1548	2297	42.4
200	.1111	.965	.1325	1255	1048	1635	39.9
300	.1302	1.131	.1696	1072	820	1349	37.4
500	.1544	1.341	.2383	906	585	1078	32.8
800	.1737	1.509	.3391	810	413	910	27.0
1000	.1809	1.571	.4073	783	346	856	23.9
1200	.1856	1.612	.4768	769	298	825	21.2
1400	.1887	1.639	.5478	763	262	807	18.9
1600	.1907	1.656	.6204	763	234	798	17.0
1800	.1920	1.668	.6945	768	212	797	15.4
2000	.1928	1.675	.7704	776	195	800	14.1
2200	.1933	1.679	.8482	788	181	809	12.9
2400	.1935	1.681	.9280	804	170	822	12.0
2500	.1936	1.681	.9688	813	166	830	11.6
2600	.1936	1.682	1.0102	823	162	839	11.2
2700	.1936	1.682	1.0523	835	159	850	10.8
2750	.1936	1.682	1.0736	841	158	856	10.6
2800	.1937	1.682	1.0951	847	157	862	10.5
3000	.1938	1.683	1.1832	876	154	890	10.0
3200	.1941	1.686	1.2749	912	154	925	9.6
3500	.1953	1.696	1.4211	982	160	995	9.3
4000	.2025	1.759	1.6980	1172	209	1190	10.1
4500	.2358	2.048	2.0527	1588	463	1654	16.3
4800	.3248	2.822	2.3394	1866	1285	2265	34.6

\* Temperature Variation Per Degree F.

Hz	dB	Rad.	R	X
300	.0017	.00017	.686	-.979
1000	.0031	.00023	.183	-.576
3000	.0036	.00035	.024	-.331

Notes: Nominal cutoff frequency = 4850 Hz.  
Phase Delay =  $64.82 \times 10^{-6}$  seconds/mile at 1000 Hz.  
Velocity of propagation =  $15.43 \times 10^3$  miles/second at 1000 Hz.

## END – SECTION IMPEDANCE

Frequency (Hz) End Section	300		1000		2000		2500	
	R	X	R	X	R	X	R	X
0 (Full Coil)	1070	-775	753	-192	652	+119	608	+233
.1	1072	-784	766	-223	698	+ 68	679	+179
.2	1073	-794	775	-255	736	+ 7	740	+108
.3	1073	-803	781	-286	762	- 58	786	+ 23
.4	1073	-811	784	-316	776	-127	811	- 71
.5 (Mid Section)	1072	-820	783	-346	776	-195	813	-166
.6	1071	-828	780	-374	765	-259	793	-254
.7	1070	-836	775	-401	744	-315	756	-329
.8	1069	-844	768	-425	715	-364	708	-388
.9	1068	-851	759	-448	682	-403	655	-431
1.0 (Full Section)	1066	-858	749	-469	647	-434	602	-458

Frequency (Hz) End Section	2750		3000		3500		4000	
	R	X	R	X	R	X	R	X
0 (Full Coil)	583	+286	556	+337	492	+437	409	+539
.1	668	+233	657	+290	625	+411	570	+554
.2	745	+159	752	+214	766	+342	774	+519
.3	804	+ 64	829	+108	895	+216	999	+382
.4	838	- 46	873	- 20	976	+ 36	1163	+117
.5 (Mid Section)	841	-158	876	-154	982	-160	1172	-209
.6	814	-262	840	-276	913	-334	1019	-468
.7	765	-347	776	-372	801	-452	814	-595
.8	704	-411	699	-438	681	-514	633	-626
.9	639	-452	622	-476	574	-535	498	-607
1.0 (Full Section)	578	-475	551	-493	486	-531	403	-568