

DELAY.XLS

	Throughput (pps)	Switch Delay	Buffer Length (bits)	Transmission Delay	
				19.2 kbit/s	64 kbit/s
KG			50	3	1
Router core	25000	0.5			
Router leaf	10000	1			
Bridge	15000	0.5			
Concentrator		0.005			
Fiber serial links to KGs		0			
Series Cabling/Connections		0			
Multiplexor (Total Mux / Dmux Buffer Operation)			30	2	0

Network Component	Round Trip Delay Contribution (ms)		Network Element Delay			
	19.2 kbit/s	64 kbit/s	One Way		Two Way	
			19.2 kbit/s	64 kbit/s	19.2 kbit/s	64 kbit/s
Equipment	35	15	DI(ms)	2	2	4
Transmission Media	10 ms / 1000 km		Dr(ms)	17	7	33

End Points	Distance (km)	Total Round Trip Delay (ms)	
		19.2 kbit/s	64 kbit/s
Ottawa-Tokyo	13000	165	145
Ottawa-London	7500	110	90
Ottawa-Washingt	750	43	23
Paris - Rome	1200	47	27

$DI = Dc*4 + Db*2 + Drl + Dw*8$
 $Dr = Dc*4 + Db*2 + Drl + Drc*2 + Dkg*4 + Dmc + Dml + Dw*8 + Df*4$
 $Dmc + Dml = Dms*2$ (Dms = Mainstreet Mux/Demux Operation)

128 Byte Message Length 53 16

Total Transaction Delays	19.2 kbit/s	64 kbit/s
Ottawa-Tokyo	218	161
Ottawa-London	163	106
Ottawa-Washington	96	39
Paris - Rome	100	43