BELLSOUTH TELECOMMUNICATIONS, INC.

FPSC DKT. NO. 990649-TP

FPSC STAFF'S 6TH REQUEST FOR PRODUCTION OF DOCUMENTS

POD NO. ___27___

PROPRIETARY

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FPSC-RECORDS/REPORTING

BELLSOUTH TELECOMMUNICATIONS, INC.

FPSC DKT. NO. 990649-TP

AT&T'S 2ND REQUEST FOR PRODUCTION OF DOCUMENTS

POD NO. __37__

PROPRIETARY

DECLASSIFIED

BST Projection - (BOY)

a = 1988.5672
b = 0.456953

	FP Ratio	% Fiber	% Copper	HISTORICAL % Fiber	% Copper
1981	0.01	0.5%	99.5%		
1982	0.01	0.9%	99.1%		
1983	0.02	1.5%	98.5%		
1984	0.03	2.6%	97.4%		
1985	0.05	4.5%	95.5%		
1986	0.08	7.7%	92.3%		
1987	0.15	12.8%	87.2%		
1988	0.26	20.6%	79.4%		
1989	0.46	31.4%	68.6%		
1990	0.81	44.7%	55.3%		
1991	1.42	58.7%	41.3%	81.56%	18.4%
1992	2.51	71.5%	28.5%	83.66%	16.3%
1993	4.43	81.6%	18.4%	85.26%	14.7%
1994	11.97	90.0%	10.0%	88.54%	11.46%
1995	18.91	94.0%	6.0%	92.56%	7.44%
1996	29.86	96.8%	3.2%	93.93%	6.07%
1997	47.15	97.9%	2.1%	96.44%	3.56%
1998	74.46	98.7%	1.3%	98.72%	1.28%
1999	117.60	99.2%	0.8%	99.12%	0.88%
2000	185.72	99.5%	0.5%		
2001	293.30	99.7%	0.3%		
2002	463.19	99.8%	0.2%		
2003	731.50	99.9%	0.1%		
2004	1155.22	99.9%	0.1%		
2005	1824.39	99.9%	0.1%		
2006	2881.17	100.0%	0.0%		

Development of IOF Metallic Cable Future Life Expectancy

BOY Year	% Fiber	% Copper	Survival Rate	Percent Of Pre-1998 Surviving Circuits
A	B	C = 1 - B	D	E[+1] = E * D
2000	99.5%	0.5%	63.45%	100.0%
2001	99.7%	0.3%	0.00%	63.4%
2002	100.0%	0.0%		0.0%

Future Life Expectancy: Sum(col-E)/E[1999] - 0.5 =   1.1 Years

BellSouth Feeder Cable

		Universe 1		Universe 2		Total				
		a =	1992.07317	a =	2004	2002.75362	2005			
		b =	0.461228	b =	0.4	0.521644	0.33			
		SR(b) =	58.60%	SR(b) =	49.18%					
					5.74	5.53				
BOY Year	Actual Fiber Penetration %	Projected Fiber Penetration %	Contribution to Total Substitution Rate % Universe 1	Projected Fiber Penetration %	Contribution to Total Substitution Rate % Universe 2	Projected Fiber Penetration % Total	Technological Obsolessence Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Embedded Equipment Surviving %
1982		0.95%	0.19%	-0.19%	0.00%	0.19%				
1983		1.50%	0.29%	-0.29%	0.00%	0.29%				
1984		2.36%	0.46%	-0.46%	0.00%	0.46%				
1985		3.69%	0.72%	-0.72%	0.00%	0.72%				
1986		5.73%	1.12%	-1.12%	0.00%	1.12%				
1987		8.79%	1.71%	-1.71%	0.00%	1.71%				
1988		13.25%	2.58%	-2.58%	0.00%	2.58%				
1989		19.51%	3.80%	-3.80%	0.00%	3.80%				
1990		27.76%	5.41%	-5.41%	0.00%	5.41%				
1991	7.47%	37.87%	7.38%	0.09%	0.00%	7.38%				
1992	9.61%	49.16%	9.58%	0.03%	0.00%	9.58%	2.37%			
1993	11.49%	60.53%	11.80%	-0.31%	0.00%	11.80%	2.45%			
1994	14.04%	70.86%	13.81%	0.23%	0.18%	14.00%	2.49%			
1995	17.18%	79.41%	15.48%	1.71%	1.37%	16.85%	3.32%			
1996	19.49%	85.95%	16.75%	2.74%	2.20%	18.96%	2.53%			
1997	22.54%	90.66%	17.67%	4.87%	3.92%	21.59%	3.25%			
1998	25.83%	93.90%	18.30%	7.53%	6.06%	24.36%	3.54%			
1999	28.83%	96.06%	18.72%	11.92%	9.60%	28.32%	5.23%			
2000		97.48%	19.00%	16.80%	13.52%	32.52%	5.86%	1.40%	7.19%	100.00%
2001		98.40%	19.18%	23.15%	18.64%	37.81%	7.84%	1.51%	9.23%	92.81%
2002		98.98%	19.29%	31.00%	24.96%	44.25%	10.35%	1.63%	11.81%	84.24%
2003		99.36%	19.36%	40.13%	32.31%	51.67%	13.31%	1.74%	14.82%	74.29%
2004		99.59%	19.41%	50.00%	40.26%	59.67%	16.54%	1.86%	18.09%	63.28%
2005		99.74%	19.44%	59.87%	48.20%	67.64%	19.77%	1.99%	21.37%	51.83%
2006		99.84%	19.46%	69.00%	55.55%	75.01%	22.77%	2.12%	24.41%	40.76%
2007		99.90%	19.47%	76.85%	61.87%	81.34%	25.35%	2.26%	27.03%	30.81%
2008		99.94%	19.48%	83.20%	66.99%	86.46%	27.44%	2.39%	29.18%	22.48%
2009		99.96%	19.48%	88.08%	70.91%	90.40%	29.05%	2.54%	30.85%	15.92%
2010		99.97%	19.49%	91.68%	73.81%	93.30%	30.23%	2.69%	32.11%	11.01%
2011		99.98%	19.49%	94.27%	75.89%	95.38%	31.08%	2.84%	33.04%	7.47%
2012		99.99%	19.49%	96.08%	77.36%	96.84%	31.68%	2.84%	33.62%	5.00%
2013		99.99%	19.49%	97.34%	78.37%	97.86%	32.09%	2.84%	34.02%	3.32%
2014		100.00%	19.49%	98.20%	79.06%	98.55%	32.38%	2.84%	34.30%	2.19%
2015		100.00%	19.49%	98.79%	79.53%	99.02%	32.57%	2.84%	34.49%	1.44%
2016		100.00%	19.49%	99.18%	79.85%	99.34%	32.70%	2.84%	34.61%	0.94%
2017		100.00%	19.49%	99.45%	80.07%	99.56%	32.79%	2.84%	34.70%	0.62%
								Average Remaining Life =		5.5

BellSouth Distribution Cable

BOY Year	Projected Fiber Penetration %	Technological Obsolessence Rate % (due to Fiber)	Projected Wireless Penetration %	Projected Wireless Penetration % (adjusted for data growth)	Technological Obsolessence Rate % (due to Wireless)	Combined Technological Obs. Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Embedded Equipment Surviving %
1998	0.35%	0.23%	0.00%	0.00%	0.00%	0.23%			
1999	0.58%	0.57%	1.00%	0.00%	0.00%	0.57%			
2000	1.14%	0.68%	2.00%	0.00%	0.00%	0.68%	1.37%	2.04%	100.00%
2001	1.81%	1.08%	5.00%	0.00%	0.00%	1.08%	1.53%	2.59%	97.96%
2002	2.87%	1.69%	9.00%	0.00%	0.00%	1.69%	1.69%	3.36%	95.43%
2003	4.51%	2.63%	14.00%	0.00%	0.00%	2.63%	1.86%	4.44%	92.23%
2004	7.03%	4.04%	19.00%	0.00%	0.00%	4.04%	2.03%	5.99%	88.13%
2005	10.78%	6.07%	24.00%	0.00%	0.00%	6.07%	2.20%	8.14%	82.85%
2006	16.20%	8.85%	30.00%	0.00%	1.00%	9.76%	2.38%	11.91%	76.11%
2007	23.61%	12.40%	35.00%	1.00%	1.01%	13.28%	2.56%	15.50%	67.05%
2008	33.08%	16.55%	40.00%	2.00%	3.06%	19.10%	2.74%	21.32%	56.65%
2009	44.16%	20.93%	46.00%	5.00%	5.26%	25.09%	2.92%	27.28%	44.58%
2010	55.84%	25.08%	51.00%	10.00%	4.44%	28.41%	3.11%	30.63%	32.42%
2011	66.92%	28.63%	55.00%	14.00%	3.49%	31.12%	3.30%	33.39%	22.49%
2012	76.39%	31.40%	60.00%	17.00%	3.61%	33.88%	3.49%	36.19%	14.98%
2013	83.80%	33.43%	64.00%	20.00%	3.75%	35.93%	3.69%	38.29%	9.56%
2014	89.22%	34.84%	68.00%	23.00%	3.90%	37.38%	3.89%	39.82%	5.90%
2015	92.97%	35.78%	71.00%	26.00%	4.05%	38.39%	4.09%	40.91%	3.55%
2016	95.49%	36.40%	74.00%	29.00%	2.82%	38.19%	4.30%	40.85%	2.10%
2017	97.13%	36.79%	77.00%	31.00%	2.90%	38.63%	4.51%	41.40%	1.24%
2018	98.19%	37.05%	80.00%	33.00%	2.99%	38.93%	4.73%	41.81%	0.73%
2019	98.86%	37.21%	82.00%	35.00%	1.54%	38.17%	4.94%	41.23%	0.42%
2020	99.28%	100.00%	82.00%	36.00%	0.00%	100.00%	5.16%	100.00%	0.25%

Average Remaining Life = 8.4

Fiber Penetration
in the Feeder

NOTE:
The Life estiamte of Analog Ckt eqpt is based on the demise
of copper in the feeder. The life curves for feeder copper are
shown here (end date of 2015).

BOY Year	Projected Fiber Penetration %	Technological Obsolessence Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Embedded Equipment Surviving %
1982	0.19%	0			
1983	0.29%	0			
1984	0.46%	0			
1985	0.72%	0			
1986	1.12%	0			
1987	1.71%	0			
1988	2.58%	0			
1989	3.80%	0			
1990	5.41%	0			
1991	7.38%	0.00%			
1992	9.58%	2.37%			
1993	11.80%	2.45%			
1994	14.00%	2.49%			
1995	16.85%	3.32%			
1996	18.96%	2.53%			
1997	21.59%	3.25%			
1998	24.36%	3.54%			
1999	28.32%	5.23%			
2000	32.52%	5.86%	8.33%	13.70%	100.00%
2001	37.81%	7.84%	9.43%	16.53%	86.30%
2002	44.25%	10.35%	10.55%	19.81%	72.03%
2003	51.67%	13.31%	11.68%	23.44%	57.76%
2004	59.67%	16.54%	12.83%	27.25%	44.22%
2005	67.64%	19.77%	13.99%	31.00%	32.17%
2006	75.01%	22.77%	15.15%	34.47%	22.20%
2007	81.34%	25.35%	16.33%	37.54%	14.55%
2008	86.46%	27.44%	17.52%	40.15%	9.09%
2009	90.40%	29.05%	18.71%	42.32%	5.44%
2010	93.30%	30.23%	19.91%	44.12%	3.14%
2011	95.38%	31.08%	21.12%	45.64%	1.75%
2012	96.84%	31.68%	22.32%	46.93%	0.95%
2013	97.86%	32.09%	23.54%	48.08%	0.51%
2014	98.55%	32.38%	24.75%	49.11%	0.26%
2015	100.00%	32.57%	25.97%	50.08%	0.13%
			27.19%		

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NOTICE

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Average Remaining Life =   **4.0**

TECHNOLOGY: ANALOG / DIGITAL CONVERSION CIRCUIT EQUIPMENT
UNITS: (CIRCUITS)

YEAR	% SURVIVING BOY	[Dt] DISPLACEMENT TECHNOLOGICAL OBSOLESCENCE	[Dm] DISPLACEMENT NORMAL MORTALITY	[Dc] DISPLACEMENT COMBINED RATE	[Sc] SURVIVAL COMBINED RATE
		NOTE 1	NOTE 2		
1993					
1994					
1995					
1996					
1997					
1998					
1999					
2000	100.0%	0.00%	8.33%	0.08326	0.91674
2001	91.7%	19.68%	9.43%	0.27254	0.72746
2002	66.7%	41.38%	10.55%	0.47566	0.52434
2003	35.0%	45.24%	11.68%	0.51639	0.48361
2004	16.9%	85.10%	12.83%	0.87013	0.12987
2005	2.2%	90.00%	13.99%	0.91399	0.08601
2006	0.0%	90.00%	15.15%	0.91515	0.08485

ARL =   2.6

* H = HISTORICAL
* E = ESTIMATED

NOTE 1:   Displacement due to Technological Obsolescence
is based on Analog Switching Life Analysis.
However, some A/D eqpt will probably be left to serve spe

NOTE 2:   Displacement due to Normal Mortality is based on Actuari:
Analysis (often called Historical Mortality Analysis) of the
historical mortality data (i.e. investment and retirements
year of placement) of the Circuit Other account.

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TECHNOLOGY: OTHER DIGITAL CIRCUIT EQUIPMENT
UNITS: (CIRCUITS)

YEAR	BOY SURVIVORS	FIBER PENETRATION RATE	TECHNOLOGICAL OBSOLESENCE RATE 7 YEAR LAG	% SURVIVING BOY	(Dm) DISPLACEMENT RATE	COMBINED RATE	% SURVIVING BOY	(Sm) SURVIVAL RATE
					NOTE 1			
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999		28.32%						
2000		32.52%		100.0%	0.06616	6.62%	100.00%	0.93384
2001		37.81%		79.0%	0.07533	7.53%	93.38%	0.92467
2002		44.25%		71.6%	0.08458	8.46%	86.35%	0.91542
2003		51.67%		64.2%	0.09388	9.39%	79.05%	0.90612
2004		59.67%		57.0%	0.1033	10.33%	71.63%	0.89670
2005		67.64%		47.4%	0.1127	11.27%	64.23%	0.88730
2006		75.01%	5.23%	38.7%	0.1222	16.81%	56.99%	0.83187
2007		81.34%	5.86%	30.7%	0.1317	18.26%	47.41%	0.81738
2008		86.46%	7.84%	23.3%	0.1413	20.86%	38.75%	0.79138
2009		90.40%	10.35%	17.0%	0.1509	23.88%	30.67%	0.76119
2010		93.30%	13.31%	11.8%	0.1606	27.24%	23.34%	0.72764
2011		95.38%	16.54%	7.7%	0.1702	30.74%	16.98%	0.69258
2012			19.77%	4.8%	0.18	34.21%	11.76%	0.65788
2013			22.77%	2.9%	0.1897	37.42%	7.74%	0.62580
2014			25.35%	1.7%	0.1995	40.24%	4.84%	0.59756
2015			27.44%	0.0%	0.2093	42.63%	2.89%	0.57373
2016			29.05%	0.0%	0.2191	44.59%	1.66%	0.55408
2017			30.23%	0.0%	0.229	46.21%	0.92%	0.53792
2018			31.08%	0.0%	0.2388	47.54%	0.49%	0.52460
2019				0.0%	0.2487	24.87%	0.26%	0.00000
2020				0.0%	0.2585	25.85%	0.20%	0
2021					0.2684			
2022								
2023								
2024								
2025								
2026								
2027								
2028								
2029								
2030								

6.90

NOTE 1:
Displacement due to Normal Mortality is based on Actuarial
Analysis (often called Historical Mortality Analysis) of the
historical mortality data (i.e. investment and retirements by
year of placement) of the Circuit Other account.

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ASYNCHRONOUS OPTICAL CIRCUIT EQUIPMENT
(CIRCUITS)

TECHNOLOGY: ASYNCHRONOUS OPTICAL CIRCUIT EQUIPMENT
UNITS: (CIRCUITS)

YEAR	BOY SURVIVORS	% SURVIVING BOY	[Dt] DISPLACEMENT TECHNOLOGICAL OBSOLESCENCE (NOTE 1)	[Dm] DISPLACEMENT NORMAL MORTALITY (NOTE 2)	[Dc] DISPLACEMENT COMBINED RATE	[Sc] SURVIVAL COMBINED RATE
1993						
1994						
1995						
1996						
1997						
1998						
1999						
2000		100.0%	0.16866	0.03907	0.20114	0.79886
2001		79.9%	0.20467	0.04802	0.24287	0.75713
2002		60.5%	0.23798	0.05705	0.28145	0.71855
2003		43.5%	0.26638	0.06616	0.31492	0.68508
2004		29.8%	0.28899	0.07533	0.34255	0.65745
2005		19.6%	0.30601	0.08458	0.36470	0.63530
2006		12.4%	0.31829	0.09388	0.38229	0.61771
2007		7.7%	0.32689	0.1033	0.39643	0.60357
2008		4.6%	0.33279	0.1127	0.40798	0.59202
2009		0.0%	0.33677	0.1222	0.41782	0.58218
2010			0.33943	0.1317	0.42643	0.57357
				0.1413		1.00000
	ARL =	3.1		0.1509		1.00000
				0.1606		

NOTE 1:
Displacement due to Technological Obsolescence
is based on Substitution Analysis of SONET
for Asynchronous Optical Circuit Equipment
with 3-year lag.

NOTE 2:
Displacement due to Normal Mortality is based on Actuarial
Analysis (often called Historical Mortality Analysis) of the
historical mortality data (i.e. investment and retirements by
year of placement) of the Circuit Other account modified to
account for the average age of async optical circuit equipment
which differs from that of Circuit Other. Used a 3 year lag.

	SR =	a =	b =
		66.1%	1998.1	0.4225196

YEAR	ASYNC OPTICAL % of Optical (1999 ANALYSIS) [BOY] Q	SONET % of Optical (1999 ANALYSIS) [BOY] R	F-P RATIO [NEW/OLD] (1999 ANALYSIS) S	[Dt] DISPLACEMENT TECHNOLOGICAL OBSOLESCENCE (1999 ANALYSIS) T = 1-(Q[+1]/Q)	[Dt] DISPLACEMENT TECHNOLOGICAL OBSOLESCENCE (1999 ANALYSIS) [3 YEAR LAG] U = T[-3]	IOF & Loop Actual % of Optical
1991	95.26%	4.74%	0.0498	0.02433		
1992	92.94%	7.06%	0.0760	0.03580		
1993	89.61%	10.39%	0.1159	0.05179		6.27%
1994	84.97%	15.03%	0.1769	0.07324		10.72%
1995	78.75%	21.25%	0.2699	0.10051		31.55%
1996	70.83%	29.17%	0.4118	0.13297		36.94%
1997	61.41%	38.59%	0.6283	0.16866	0.07324	46.31%
1998	51.06%	48.94%	0.9586	0.20467	0.10051	56.49%
1999	40.61%	59.39%	1.4627	0.23798	0.13297	60.04%
2000	30.94%	69.06%	2.2318	0.26638	0.16866	
2001	22.70%	77.30%	3.4052	0.28899	0.20467	
2002	16.14%	83.86%	5.1957	0.30601	0.23798	
2003	11.20%	88.80%	7.9276	0.31829	0.26638	
2004	7.64%	92.36%	12.0959	0.32689	0.28899	
2005	5.14%	94.86%	18.4559	0.33279	0.30601	
2006	3.43%	96.57%	28.1601	0.33677	0.31829	
2007	2.27%	97.73%	42.9667	0.33943	0.32689	
2008	1.50%	98.50%	65.5586	0.34120	0.33279	
2009	0.99%	99.01%	100.0293	0.34236	0.33677	
2010	0.65%	99.35%	152.6249	1.00000	0.33943	
2011						
2012						
2013						
2014						
2015						
2016						
2017						
2018						
2019						
2020						

BST
SONET IOF Equipment
Development of the Economic Life and the Average Remaining Life

$1.01000E+00 = c$
$2.96920E-51 = g$
$3.18234E+00 = s$

$2015.0 = a$
$0.500000 = b$
$0.00\% = sr$

Year	Newly Placed Equipment		NG-SONET		SONET Equipment		
	Beginning of Period Surviving %	Historical Mortality Rate %	Penetration %	Technological Obsolescence Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Embedded Surviving %
2000	1.00000	0.58%	0.06%	0.04%	6.62%	6.65%	100.00%
2001	0.99420	1.73%	0.09%	0.06%	7.53%	7.59%	93.35%
2002	0.97700	2.88%	0.15%	0.10%	8.46%	8.55%	86.27%
2003	0.94888	4.02%	0.25%	0.16%	9.39%	9.53%	78.89%
2004	0.91070	5.17%	0.41%	0.26%	10.33%	10.57%	71.37%
2005	0.86364	6.31%	0.67%	0.43%	11.27%	11.65%	63.83%
2006	0.80916	7.45%	1.10%	0.71%	12.22%	12.84%	56.39%
2007	0.74890	8.58%	1.80%	1.15%	13.17%	14.17%	49.15%
2008	0.68462	9.72%	2.93%	1.87%	14.13%	15.73%	42.19%
2009	0.61809	10.85%	4.74%	2.98%	15.09%	17.62%	35.55%
2010	0.55105	11.97%	7.59%	4.69%	16.06%	20.00%	29.28%
2011	0.48507	13.10%	11.92%	7.18%	17.02%	22.98%	23.43%
2012	0.42153	14.22%	18.24%	10.58%	18.00%	26.68%	18.05%
2013	0.36160	15.34%	26.89%	14.86%	18.97%	31.01%	13.23%
2014	0.30614	16.45%	37.75%	19.67%	19.95%	35.70%	9.13%
2015	0.25578	17.56%	50.00%	24.49%	20.93%	40.30%	5.87%
2016	0.21087	18.67%	62.25%	28.76%	21.91%	44.37%	3.50%
2017	0.17151	19.77%	73.11%	32.17%	22.90%	47.70%	1.95%
2018	0.13761	20.87%	81.76%	34.66%	23.88%	50.26%	1.02%
2019	0.10889	21.96%	88.08%	36.36%	24.87%	52.19%	0.51%
2020	0.08498	23.05%	92.41%	37.48%	25.85%	53.64%	0.24%
2021	0.06539	24.13%	95.26%	38.19%	26.84%	54.78%	0.11%
2022	0.04961	25.21%	97.07%	0.00%	28.00%	100.00%	0.05%
2023	0.03710	100.00%	100.00%				
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
2033							
2034							
2035							
2036							
2037							
2038							
2039							
2040							

Average Remaining Life = 7.3

BST
Digital Switching - Analog Line Equipment (ALE)
Development of the Average Remaining Life

BOY Year	Projected IDLC Penetration %	Technological Obsolessence Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Survivors %
1998	19.46%	3.35%			
1999	22.16%	4.10%			
2000	25.35%	7.29%	6.62%	13.42%	100.00%
2001	30.79%	8.71%	7.53%	15.59%	86.58%
2002	36.82%	10.24%	8.46%	17.84%	73.08%
2003	43.29%	11.83%	9.39%	20.11%	60.05%
2004	50.00%	13.42%	10.33%	22.36%	47.97%
2005	56.71%	14.95%	11.27%	24.54%	37.25%
2006	63.18%	16.38%	12.22%	26.60%	28.11%
2007	69.21%	17.66%	13.17%	28.51%	20.63%
2008	74.65%	18.79%	14.13%	30.27%	14.75%
2009	79.41%	19.75%	15.09%	31.86%	10.29%
2010	83.48%	20.56%	16.06%	33.32%	7.01%
2011	86.88%	21.22%	17.02%	34.62%	4.67%
2012	89.66%	21.75%	18.00%	35.83%	3.06%
2013	91.91%	22.17%	18.97%	36.94%	1.96%
2014	93.70%	22.51%	19.95%	37.97%	1.24%
2015	95.12%	22.77%	20.93%	38.93%	0.77%
2016	96.23%		21.91%	21.91%	0.47%
2017	100.00%		22.90%	22.90%	0.37%
2018	100.00%		23.88%	23.88%	0.28%
2019	100.00%		24.87%	24.87%	0.21%
2020	100.00%		25.85%	25.85%	0.16%
2021	100.00%				

Average Remaining Life = 4.49

IDLC Actual %

5.78% 1
7.84% 1
9.96% 1
12.64% 1
15.11% 1
16.74% 1
18.28% 1
19.46% 1
22.16% 1

Historical Mortality Patterns of Digital Switching ALE

The historical mortality patterns are similar to that of general circuit equipment. They are derived from the best fit mortality curve to the 1989-1991 band of data. This band was chosen because it is the most recent band prior to the influence of significant technological substitutions. The best fit Gompertz-Makeham survivor curve is that shown; and its average life is 12.0 years.

ALE Technology

ALE circuit packs interface voice-grade analog loop channels with the Digital Switch. As the loop transitions to an integrated digital network, via Integrated Digital Loop Carrier (IDLE), the IDLC loop channel must interface with the switch via a DLE circuit pack; ALE packs are not compatible with an IDLC architecture. IDLC is rapidly replacing analog channels in the loop. As the IDLC substitution progresses, ALE circuit packs are, by necessity, replaced with DLE circuit packs. The IDLC substitution, therefore, is directly causing the technological obsolescence of Digital Switching ALE equipment. This technological substitution is reflected in the table.

As far back as 1992, surpluses of ALE equipment were documented in several central offices in Florida. Then, we predicted that DESS interim retirement levels would increase as a result of ALE obsolescence; subsequent history bares this out.

BST
Digital Switching - Digital Line Equipment (DLE)
Developmend of the Economic Life and the Average Remaining Life

1.01000E+00 = c
2.96920E-51 = g
3.18234E+00 = s

2006.5 = a
0.65 = b
91.6% = SR

Year	Newly Placed DLE Equipment		TR303 Complient DLE		Embedded DLE Switching Equipment		
	Beginning of Period Surviving %	Historical Mortality Rate %	Penetration %	Technological Obsolessence Rate %	Historical Mortality Rate %	Combined Mortality Rate %	Embedded Surviving %
			0.60%				
2000	1.00000	0.58%	1.31%	0.71%	6.62%	7.27%	100.00%
2001	0.99420	1.73%	2.50%	1.21%	7.53%	8.63%	92.73%
2002	0.97700	2.88%	5.00%	2.56%	8.46%	10.77%	84.72%
2003	0.94888	4.02%	9.32%	4.55%	9.39%	13.46%	75.59%
2004	0.91070	5.17%	16.45%	7.86%	10.33%	17.29%	65.42%
2005	0.86364	6.31%	27.39%	13.09%	11.27%	22.73%	54.11%
2006	0.80916	7.45%	41.95%	20.05%	12.22%	29.59%	41.81%
2007	0.74890	8.58%	58.05%	27.75%	13.17%	36.95%	29.44%
2008	0.68462	9.72%	72.61%	34.70%	14.13%	43.54%	18.56%
2009	0.61809	10.85%	83.55%	39.93%	15.09%	48.55%	10.48%
2010	0.55105	11.97%	90.68%	43.34%	16.06%	51.96%	5.39%
2011	0.48507	13.10%	94.91%	45.36%	17.02%	54.17%	2.59%
2012	0.42153	14.22%	97.27%	46.49%	18.00%	55.62%	1.19%
2013	0.36160	15.34%	98.56%	47.11%	18.97%	56.64%	0.53%
2014	0.30614	16.45%	100.00%	100.00%	19.95%	98.95%	0.23%
2015	0.25578	17.56%			20.93%	20.93%	0.00%
2016	0.21087	18.67%					
2017	0.17151	19.77%					
2018	0.13761	20.87%					
2019	0.10889	21.96%					
2020	0.08498	23.05%					
2021	0.06539	24.13%					
2022	0.04961	25.21%					
2023	0.03710	26.29%					
2024	0.02735	27.36%					
2025	0.01987	28.42%					
2026	0.01422	29.48%					
2027	0.01003	30.54%					
2028	0.00697	31.59%					
2029	0.00477	32.63%					
2030	0.00321	33.67%					
2031	0.00213	34.70%					
2032	0.00139	35.73%					
2033	0.00089	36.75%					
2034	0.00057	37.76%					
2035	0.00035	38.77%					
2036	0.00022	39.77%					
2037	0.00013	40.76%					
2038	0.00008	100.00%					
2039							

Average Remaining Life = 5.3

Notes:

Historical Mortality Patterns of Digital Switching DLE

The historical mortality patterns are similar to that of general circuit equipment. They are derived from the best fit mortality curve to the 1989-1991 band of data. This band was chosen because it is the most recent band prior to the influence of significant technological substitutions. The best fit Gompertz-Makeham survivor curve is that shown with an average life of 10 years.

TR-303 DLE Technology

Nearly all of the embedded DLE technology is TR-008 compliant and incompatible with the new TR-303 standards. Savings associated with TR-303 are substantial, and the substitution of TR-008 with TR-303 has already started.

The substitution of TR-303-compliant DLE for TR-008-compliant DLE will probably follow the deployment of NGDLC systems. The penetration of NGDLC has been modeled with a substitution rate of 91.6% over 15 years. Based on engineering judgement, the TR-303 for TR-008 substitution is shown as lagging the NGDLC penetration by two years.

BST
Digital Switching - Trunk Interface Equipment (TIE)
Developmend of the Economic Life and the Average Remaining Life

	1.01000E+00 =c		2006.1 =a				
	2.96920E-51 =g		0.422520 =b				
	3.18234E+00 =s		66.10% =sr				
					Embedded		
	Newly Placed DLE Equipment		SONET Complient TIE		TIE Switching Equipment		
	Beginning of Period Surviving	Historical Mortality Rate	Penetration	Technological Obsolessence Rate	Historical Mortality Rate	Combined Mortality Rate	Embedded Surviving
Year	%	%	%	%	%	%	%
2000	1.00000	0.58%	7.06%	3.58%	6.62%	9.72%	1.00000
2001	0.99420	1.73%	10.39%	5.18%	7.53%	11.98%	90.28%
2002	0.97700	2.88%	15.03%	7.32%	8.46%	14.69%	79.46%
2003	0.94888	4.02%	21.25%	10.05%	9.39%	17.85%	67.79%
2004	0.91070	5.17%	29.17%	13.30%	10.33%	21.41%	55.69%
2005	0.86364	6.31%	38.59%	16.87%	11.27%	25.18%	43.76%
2006	0.80916	7.45%	48.94%	20.47%	12.22%	28.92%	32.74%
2007	0.74890	8.58%	59.39%	23.80%	13.17%	32.37%	23.27%
2008	0.68462	9.72%	69.06%	26.64%	14.13%	35.39%	15.74%
2009	0.61809	10.85%	77.30%	28.90%	15.09%	37.90%	10.17%
2010	0.55105	11.97%	83.86%	30.60%	16.06%	39.93%	6.32%
2011	0.48507	13.10%	88.80%	31.83%	17.02%	41.57%	3.79%
2012	0.42153	14.22%	92.36%	32.69%	18.00%	42.91%	2.22%
2013	0.36160	15.34%	94.86%	33.28%	18.97%	44.03%	1.27%
2014	0.30614	16.45%	96.57%	33.68%	19.95%	45.00%	0.71%
2015	0.25578	17.56%	97.73%	33.94%	20.93%	45.87%	0.39%
2016	0.21087	18.67%	98.50%	34.12%	21.91%	46.67%	0.21%
2017	0.17151	19.77%	99.01%	34.24%	22.90%	47.43%	0.11%
2018	0.13761	20.87%	99.35%	100.00%	23.88%	94.63%	0.06%
2019	0.10889	21.96%	100.00%	100.00%	24.87%	94.70%	0.00%
2020	0.08498	23.05%					
2021	0.06539	24.13%					
2022	0.04961	25.21%					
2023	0.03710	26.29%					
2024	0.02735	27.36%					
2025	0.01987	28.42%					
2026	0.01422	29.48%					
2027	0.01003	30.54%					
2028	0.00697	31.59%					
2029	0.00477	32.63%					
2030	0.00321	33.67%					
2031	0.00213	34.70%					
2032	0.00139	35.73%					
2033	0.00089	36.75%					
2034	0.00057	37.76%					
2035	0.00035	38.77%					
2036	0.00022	39.77%					
2037	0.00013	40.76%					
2038	0.00008	100.00%					
2039							

Average Remaining Life = 4.8