Exhibit HSH–5.3

Private Line Service

		1988	1989	1990	1991	1992	1993
Utilized AT&T Private Line Circuits on COMSAT.						**Source: Exhibit HSH–3**	
[1]	Caribbean / Latin America	47	84	166	165	254	518
[1]	East Asia / Oceania	214	333	454	541	704	718
[1]	Europe / Mediterranean / Middle East	207	285	261	302	300	249
	Subtotal	468	702	881	1,008	1,258	1,485
[1]	Rest of Latin America	11	11	20	22	25	26
[1]	Rest of AOR	6	3	36	8	69	71
[1]	Rest of POR	1	1	1	4	4	3
	Subtotal	18	15	57	34	98	100
	Total AOR	271	383	483	497	648	864
	Total POR	215	334	455	545	708	721
	Total	486	717	938	1,042	1,356	1,585
Utilized AT&T Private Line Circuits on Cables.						**Source: Exhibit HSH–3**	
[2]	Caribbean / Latin America	78	108	154	164	215	238
[2]	East Asia / Oceania	83	269	470	710	1,123	1,492
[2]	Europe / Mediterranean / Middle East	965	1,385	1,998	2,809	3,871	5,145
	Subtotal	1,126	1,762	2,622	3,683	5,209	6,875
[2]	Rest of Latin America	0	0	4	4	5	5
[2]	Rest of AOR	0	0	0	0	0	0
[2]	Rest of POR	0	0	0	0	0	0
	Subtotal	0	0	4	4	5	5
	Total AOR	1,043	1,493	2,156	2,977	4,091	5,388
	Total POR	83	269	470	710	1,123	1,492
	Total	1,126	1,762	2,626	3,687	5,214	6,880
Total Utilized AT&T Private Line Circuits = COMSAT + Cables							
[3]	Caribbean / Latin America	125	192	320	329	469	756
[3]	East Asia / Oceania	297	602	924	1,251	1,827	2,210
[3]	Europe / Mediterranean / Middle East	1,172	1,670	2,259	3,111	4,171	5,394
	Subtotal	1,594	2,464	3,503	4,691	6,467	8,360
[3]	Rest of Latin America	11	11	24	26	30	31
[3]	Rest of AOR	6	3	36	8	69	71
[3]	Rest of POR	1	1	1	4	4	3
	Subtotal	18	15	61	38	103	105
	Total AOR	1,314	1,876	2,639	3,474	4,739	6,252
	Total POR	298	603	925	1,255	1,831	2,213
	Total	1,612	2,479	3,564	4,729	6,570	8,465
COMSAT Market Share in Utilized AT&T Private Line Circuits							
[4]	Caribbean / Latin America	37.60%	43.75%	51.88%	50.15%	54.16%	68.52%
[4]	East Asia / Oceania	72.05%	55.32%	49.13%	43.25%	38.53%	32.49%
[4]	Europe / Mediterranean / Middle East	17.66%	17.07%	11.55%	9.71%	7.19%	4.62%
	Subtotal	29.36%	28.49%	25.15%	21.49%	19.45%	17.76%
[4]	Rest of Latin America	100.00%	100.00%	83.33%	84.62%	83.33%	83.87%
[4]	Rest of AOR	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
[4]	Rest of POR	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	Subtotal	100.00%	100.00%	93.44%	89.47%	95.15%	95.24%
	Total AOR	20.62%	20.42%	18.30%	14.31%	13.67%	13.82%
	Total POR	72.15%	55.39%	49.19%	43.43%	38.67%	32.58%
	Total	30.15%	28.92%	26.32%	22.03%	20.64%	18.72%

NOTES: All circuits are in 64 kbps–equivalents.
AOR = "Atlantic Ocean Region". The AOR includes Caribbean/Latin America, Europe/Mediterranean/Middle East, Rest of Latin America, and Rest of AOR.
POR = "Pacific Ocean Region". The POR includes East Asia/Oceania and Rest of POR.
[3] = [1] + [2]. Private Line on separate satellite systems is omitted.
[4] = [1] / [3]

EXHIBIT HSH-6

UTILIZED CAPACITY AND REVENUES FOR VIDEO AND AUDIO SERVICES

Exhibit HSH–6.1

Utilized Video and Audio Services –– Transponder Leases

		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Video and Audio Leases for trans–oceanic service to and from the U.S. (in 36/27 MHz transponder leases)												
Trans–Atlantic (total)		6	10.67	11.33	15.33	18.33	19.33	40.67	43.7	50.7	77.7	90.7
	COMSAT	6	10.67	11.33	13.33	15.33	15.33	35.67	38.7	45.7	52.7	59.7
[1]	PAS–1			0	2	3	4	5	5	5	5	5
[2]	PAS–3										11	14
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
[3]	Orion 1										9	12
	Hispasat A&B							NA	NA	NA	NA	NA
	Intersputnik					NA	NA	NA	NA	NA	NA	NA
[4]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caribbean and Latin America (total)		0	1	2	5	7	7	9	17	19	26	26
	COMSAT	0	1	1	3	3	3	5	9	11	12	10
[5]	PAS–1			1	2	4	4	4	8	8	8	8
[6]	PAS–3										6	8
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
	Domestic Satellites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[4]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOR (total)		6	11.67	13.33	20.33	25.33	26.33	49.67	60.7	69.7	103.7	116.7
	COMSAT	6	11.67	12.33	16.33	18.33	18.33	40.67	47.7	56.7	64.7	69.7
	PAS–1			1	4	7	8	9	13	13	13	13
	PAS–3										17	22
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
	Orion 1										9	12
	Hispasat A&B							NA	NA	NA	NA	NA
	Intersputnik					NA	NA	NA	NA	NA	NA	NA
	Domestic Satellites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[4]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans–Pacific (POR total)		3	3.67	5.83	5.83	5.83	13.67	17	19	33	42	48
	COMSAT	3	3.67	5.83	5.83	5.83	13.67	17	19	21	27	30
[7]	PAS–2									12	15	18
	TDRSS West						NA	NA	NA	NA	NA	NA
	Rimsat									NA	NA	NA
	Intersputnik						NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Video and Audio Leases by Facility Type (in 36/27 MHz transponder leases)												
[8]	SSS (AOR+POR)	0	0	1	4	7	8	9	13	25	54	65
[9]	COMSAT (AOR+POR)	9	15.34	18.16	22.16	24.16	32	57.67	66.7	77.7	91.7	99.7
	Domestic Satellites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[4]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[10]	Total	9	15.34	19.16	26.16	31.16	40	66.67	79.7	102.7	145.7	164.7
Estimated COMSAT Market Share												
	Trans–Atlantic	100.0%	100.0%	100.0%	87.0%	83.6%	79.3%	87.7%	88.6%	90.1%	67.8%	65.8%
	Caribbean and Latin America		100.0%	50.0%	60.0%	42.9%	42.9%	55.6%	52.9%	57.9%	46.2%	38.5%
	Trans–Pacific	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	63.6%	64.3%	62.5%
	AOR (total)	100.0%	100.0%	92.5%	80.3%	72.4%	69.6%	81.9%	78.6%	81.3%	62.4%	59.7%
	POR (total)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	63.6%	64.3%	62.5%
	Total	100.0%	100.0%	94.8%	84.7%	77.5%	80.0%	86.5%	83.7%	75.7%	62.9%	60.5%

Average Incremental COMSAT Market Share since SSS Competition has Emerged

[11]	Trans–Atlantic (1989–1996)	60.9%
[11]	Caribbean and Latin America (1988–1996)	36.0%
[11]	Trans–Pacific (1994–1996)	37.9%

NOTES: *Data for 1994 to 1996 are projections.*

[1] Assumes PAS–1 is fully utilized in 1993; same number of leases in 1994–96

[2],[6] PAS–3: only 12 54–MHz C–band and 12 54–MHz Ku–band used for video;
Approximately 50% subscribed on pre–launch basis; fully subscribed within 4 years; Source: PAS SEC Form S–1.
Ku–band lease assumption: 12 to–from Europe; 6 to–from Latin America; 6 within Latin America.
C–band lease assumptions: 6 to–from Europe; 3 to–from Africa; 3 within Africa; 6 to–from Latin America; 6 within Latin America.

[3] Orion 1: assumes 60% of bandwidth is used for video; 50% subscribed on a pre–launch basis; 50% used for service to and from the U.S.; fully subscribed within 4 years.

[4] Digital trans–oceanic video service is expected to be offered on fiber optic cables in the near future.

[5] PAS introduced digital service on one of the 8 transponders in 1993.

[7] PAS–2: only C–band can reach U.S.; only 12 54–MHz transponders used for video;
Approximately 50% subscribed on pre–launch basis; fully subscribed within 4 years; Source: PAS SEC Form S–1.
C–band lease assumption: 24 to–from U.S.

[8] Equals total leases on PAS–1, PAS–2, PAS–3, and Orion 1. Data for other SSS are not available.

[9] Equals total leases on COMSAT.

[10] = [8] + [9]

[11] COMSAT's share of traffic growth between the emergence of competition from separate satellite systems and 1996.

Sources: COMSAT, PanAmSat SEC Form S–1.

Exhibit HSH–6.2

Utilized Video and Audio Services – – Revenues

		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Video and Audio Revenues for trans–oceanic service to and from the U.S. (millions)												
Trans–Atlantic (total)			$3.1	$5.0	$6.4	$7.9	$8.7	$13.7	$24.1	$27.9	$58.7	$71.9
	COMSAT	NA	$3.1	$5.0	$4.9	$5.7	$5.7	$9.9	$20.3	$24.1	$29.9	$35.6
[1]	PAS–1				$1.5	$2.3	$3.0	$3.8	$3.8	$3.8	$3.8	$3.8
[2]	PAS–3										$13.8	$17.5
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
	Orion 1										$11.3	$15.0
	Hispasat A&B							NA	NA	NA	NA	NA
	Intersputnik					NA	NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caribbean and Latin America (total)			$0.6	$1.4	$2.7	$4.4	$4.3	$4.4	$8.3	$9.0	$17.4	$20.0
	COMSAT	NA	$0.6	$0.6	$1.2	$1.4	$1.3	$1.4	$2.3	$3.0	$3.9	$4.0
[1]	PAS–1			$0.8	$1.5	$3.0	$3.0	$3.0	$6.0	$6.0	$6.0	$6.0
[2]	PAS–3										$7.5	$10.0
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
	Domestic Satellites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOR (total)			$3.7	$6.4	$9.1	$12.3	$13.1	$18.0	$32.4	$36.9	$76.1	$91.9
	COMSAT	NA	$3.7	$5.6	$6.1	$7.1	$7.1	$11.3	$22.7	$27.1	$33.8	$39.6
[1]	PAS–1			$0.8	$3.0	$5.3	$6.0	$6.8	$9.8	$9.8	$9.8	$9.8
[2]	PAS–3								$0.0	$0.0	$21.3	$27.5
	TDRSS East			NA	NA	NA	NA	NA	NA	NA	NA	NA
	Orion 1										$11.3	$15.0
	Hispasat A&B							NA	NA	NA	NA	NA
	Intersputnik					NA	NA	NA	NA	NA	NA	NA
	Domestic Satellites	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans–Pacific (POR total)			$1.6	$1.5	$2.4	$2.0	$2.4	$4.2	$6.1	$23.1	$28.8	$33.7
	COMSAT	NA	$1.6	$1.5	$2.4	$2.0	$2.4	$4.2	$6.1	$8.1	$10.0	$11.2
[2]	PAS–2									$15.0	$18.8	$22.5
	TDRSS West						NA	NA	NA	NA	NA	NA
	Rimsat									NA	NA	NA
	Intersputnik						NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Video and Audio Revenues by Facility Type (millions)												
[4]	SSS (AOR+POR)		$0.0	$0.8	$3.0	$5.3	$6.0	$6.8	$9.8	$24.8	$61.0	$74.8
[5]	COMSAT (AOR+POR)		$5.3	$7.1	$8.5	$9.0	$9.4	$15.5	$28.8	$35.2	$43.8	$50.8
	Domestic Satellites		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[3]	Fiber Optic Cables		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
[6]	Total		$5.3	$7.9	$11.5	$14.3	$15.4	$22.3	$38.6	$60.0	$104.8	$125.6
Estimated COMSAT Market Share												
	Trans–Atlantic		100.0%	100.0%	76.6%	71.6%	65.6%	72.6%	84.4%	86.5%	51.0%	49.5%
	Caribbean and Latin America		100.0%	45.8%	44.8%	32.0%	30.9%	31.2%	28.1%	33.3%	22.4%	20.0%
	Trans–Pacific		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	35.1%	34.8%	33.2%
	AOR (total)		100.0%	88.2%	67.2%	57.4%	54.0%	62.6%	69.9%	73.5%	44.4%	43.1%
	POR (total)		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	35.1%	34.8%	33.2%
	Total		100.0%	90.5%	74.0%	63.3%	61.1%	69.7%	74.7%	58.7%	41.8%	40.5%

Average Incremental COMSAT Market Share since SSS Competition has Emerged

[7]	Trans–Atlantic (1989–1996)	45.8%
[7]	Caribbean and Latin America (1988–1996)	17.4%
[7]	Trans–Pacific (1994–1996)	18.3%

NOTES: Data for 1994–1996 are projections.
Revenues only for the half–circuits originating and terminating in the U.S.
PanAmSat and Orion 1 revenues are the product of rates per half–circuit times the number of transponder leases (listed in Exhibit HSH–6.1).
[1] *For PAS–1, average rates are estimated at 0.75 million dollars per transponder and half–circuit. Source: PanAmSat Rate Card.*
[2] For PAS–2, –3, and Orion 1, average rates are estimated at 1.25 million dollars per transponder and half–circuit. Estimates based on PAS SEC Form S–1 and the following trade literature: Satellite News 12/6/93, Asia–Pacific Space Report 6/93 and 9/93, South China Morning Post 6/27/93 and 12/5/93, and Broadcasting & Cable 2/7/94.
[3] Digital trans–oceanic video service is expected to be offered on fiber optic cables in the near future.
[4] Equals total revenues from PAS–1, PAS–2, PAS–3, and Orion 1. Data for other SSS are not available.
[5] Equals total revenues from COMSAT.
[6] = [4] + [5]
[7] COMSAT's share of revenue growth between the emergence of competition from separate satellite systems and 1996.
Sources: COMSAT, PanAmSat SEC Form S–1.

EXHIBIT HSH-7

AVAILABLE AND IDLE TRANS-OCEANIC CAPACITY

Exhibit HSH–7.1

Available Trans–Oceanic Capacity

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Notes
Trans–Atlantic Cables	9,229	9,091	16,651	33,661	33,661	33,661	71,461	93,296	146,216	146,216	267,176	[1]
Trans–Caribbean Cables	6,097	6,097	6,097	11,834	14,632	14,632	14,632	13,163	58,523	58,523	58,523	[2]
Atlantic Ocean Cables	15,326	15,188	22,748	45,495	48,293	48,293	86,093	106,459	204,739	204,739	325,699	[3]
SSS Atlantic Ocean Region	0	0	6,600	6,600	7,563	7,563	8,525	8,800	8,800	28,732	28,732	[4]
COMSAT Atlantic Ocean Region	45,100	43,450	44,138	48,813	58,163	58,163	75,350	82,088	90,613	104,225	123,200	[5]
Atlantic Ocean Satellites	45,100	43,450	50,738	55,413	65,725	65,725	83,875	90,888	99,413	132,957	151,932	[6]
TOTAL ATLANTIC OCEAN	60,426	58,638	73,486	100,908	114,018	114,018	169,968	197,347	304,152	337,696	477,631	[7]
Trans–Pacific Cables	2,367	2,367	9,927	9,927	9,927	22,023	37,143	43,716	43,716	43,716	164,676	[8]
SSS Pacific Ocean Region	0	0	0	963	963	3,575	3,575	3,575	12,782	14,432	18,832	[9]
COMSAT Pacific Ocean Region	17,875	15,125	15,125	19,113	19,800	26,538	27,225	35,750	30,113	30,113	35,063	[10]
Pacific Ocean Satellites	17,875	15,125	15,125	20,075	20,763	30,113	30,800	39,325	42,895	44,545	53,895	[11]
TOTAL PACIFIC OCEAN	20,242	17,492	25,052	30,002	30,690	52,136	67,943	83,041	86,611	88,261	218,571	[12]
TOTAL ATLANTIC and PACIFIC	80,668	76,130	98,538	130,910	144,708	166,154	237,911	280,388	390,762	425,957	696,202	[13]
COMSAT Share of Total AOR	74.6%	74.1%	60.1%	48.4%	51.0%	51.0%	44.3%	41.6%	29.8%	30.9%	25.8%	[14]
COMSAT Share of Total POR	88.3%	86.5%	60.4%	63.7%	64.5%	50.9%	40.1%	43.1%	34.8%	34.1%	16.0%	[15]

NOTES: All circuits are in 64 kbps–equivalents.
[3] = [1] + [2]
[4],[9] Assumes maximum available capacity = 50% of total separate satellite systems capacity.
[5],[10] Assumes COMSAT's maximum available capacity for service to and from the U.S. = 50% of INTELSAT capacity.
[6] = [4] + [5]
[7] = [3] + [6]
[11] = [9] + [10]
[12] = [8] + [11]
[13] = [7] + [12]
[14] = [5] / [7]
[15] = [10] / [12]

SOURCE: Exhibit HSH–10

Exhibit HSH–7.2

Idle Capacity

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Trans–Atlantic Cables to Europe/Mediterranean/Middle East									
[1] Available Cable Capacity	16,651	33,661	33,661	33,661	71,461	93,296	146,216	146,216	267,176
[2] Utilized Cable Capacity	9,564	18,460	21,215	23,176	24,698	25,697			
Idle Cable Capacity	7,087	15,201	12,446	10,485	46,763	67,599			
[2] Utilized COMSAT Switched Voice and Private Line Capacity	15,487	12,737	11,819	10,144	9,301	8,452			
Trans–Pacific Cables to East Asia/Oceania									
[1] Available Cable Capacity	9,927	9,927	9,927	22,023	37,143	43,716	43,716	43,716	164,676
[2] Utilized Cable Capacity	1,349	3,247	4,616	10,855	11,599	15,692			
Idle Cable Capacity	8,578	6,680	5,311	11,168	25,544	28,024			
[2] Utilized COMSAT Switched Voice and Private Line Capacity	7,106	6,999	6,502	6,016	6,104	5,509			
Trans–Caribbean Cables to Caribbean/Latin America									
[1] Available Cable Capacity	6,097	11,834	14,632	14,632	14,632	13,163	58,523	58,523	58,523
[2] Utilized Cable Capacity	2,525	5,097	5,136	6,265	6,425	6,911			
Idle Cable Capacity	3,572	6,737	9,496	8,367	8,207	6,252			
[2] Utilized COMSAT Switched Voice and Private Line Capacity	5,327	6,503	6,832	6,935	6,847	6,613			
Total (Cables, COMSAT, and Separate Satellite Systems)									
[3] Total Available Capacity	98,538	130,910	144,708	166,154	237,911	280,388	390,762	425,957	696,202
[4] Total Utilized Capacity	49,059	63,060	68,171	78,698	88,069	95,160			
Total Idle Capacity	49,478	67,850	76,536	87,456	149,842	185,227			
[2] Total Utilized COMSAT Switched Voice and Private Line Capacity	30,341	29,050	28,618	27,388	27,003	24,932			

NOTES: All circuits are in 64 kbps–equivalents.
[1],[3] Source: Exhibit HSH–7.1.
[2] Source: Exhibit HSH–5.1.
[4] = (Total Switched Voice and Private Line Utilized Circuits) + (Total Video and Audio Utilized Circuits).
Source for [4]: (Exhibit HSH–5.1, rows [8] + rows [9]) + (Exhibit HSH–6.1, row [10]) * 275. It is assumed that one 36/27 Mhz transponder lease is equal to 275 64 kbps–equivalent duplex circuits. Utilized capacity for switched voice and private line services on separate satellite systems is omitted. Also omits video and audio services on separate satellite systems other than PanAmSat and Orion 1.

EXHIBIT HSH-8

COMSAT RATE TRENDS

Exhibit HSH–8

CWS RATE TRENDS

	Service Type	1985 Mid	1985 End	1986 Mid	1986 End	1987 Mid	1987 End	1988 Mid	1988 End	1989 Mid	1989 End	1990 Mid	1990 End	1991 Mid	1991 End	1992 Mid	1992 End	1993 Mid	1993 End	1994 Mid	1994 End	1995 Mid	1995 End	1996 Mid	1996 End	1997 Mid	1997 End
	Switched Voice Services ($/64kbps–equiv./month)																										
	FM Voice (4 kHz, monthly)	655	630	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610								
	FM Voice (4 kHz, 7 & 9 year)					505	420	420	420	420	420	420	420	420	420	420	420	420	420								
[1]	IDR & TDMA/DNI (10 year, 2.048 Mbps, base)							883	883	883	883	883	770	770	770	690	690	690	580	580	580	520	520	450	450	350	350
[1]	IDR & TDMA/DNI (10 year, 2.048 Mbps, growth)															423	423	423	423	423	423	423	423	400	400	350	350
	Private Line Services ($/64 kbps–equiv./month)																										
	IBS (R1/2 FEC 64 kbps, monthly)	842	810	780	780	640	640	640	640	640	640	640	640	640	640	640	640	640	640								
	IBS (R3/4 FEC 64 kbps, monthly)												585	585	585	585	585	585	585								
	IBS (R1/2 FEC 64 kbps, 7 year)					650	650	420	420	420	420	420	420	420	420	420	420	420	420								
	IBS (R3/4 FEC 64 kbps, 7 year)												420	420	420	420	420	420	420								
	IBS (R1/2 FEC T1 (=24 64 kbps), monthly)	524	504	487	487	401	401	401	401	401	401	401	401	401	401	401	401	401	401								
	IBS (R3/4 FEC T1 (=24 64 kbps), monthly)												367	367	367	367	367	367	367								
	IBS (R1/2 FEC T1 (=24 64 kbps), 7 year)					403	403	331	331	331	331	331	331	331	331	331	331	331	331								
	IBS (R3/4 FEC T1 (=24 64 kbps), 7 year)												304	304	304	304	304	304	304								
	Video & Audio Services ($1,000/simplex 36 MHz/month)																										
[2]	Stationkept (5 year, 36 MHz, preempt. global)	100	74.5	74.1	74.1	70.9	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7								
[2]	Stationkept (5 year, 36 MHz, preempt. hemi)	55.5	41.3	41	41	38	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1								
[2]	Stationkept (7 year, 36 MHz, preempt. zone)	46.6	34.5	34.3	34.3	31.3	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5								
	1st year inclined (7 year; 36 MHz; zone):													11	11	11	11	11	11								
	2nd year inclined (7 year; 36 MHz; zone):													16.5	16.5	16.5	16.5	16.5	16.5								
	3rd year inclined (7 year; 36 MHz; zone):													22	22	22	22	22	22								

NOTES:
Some rates may be the average of rate ranges.
[1] 1993–1997 rate schedules according to agreements with AT&T, MCI, and Sprint. Numbers may represent mid–points of rate ranges.
[2] In 1993, video rates for digital service replaced the existing analog service at slightly higher rates. However, rates on all existing leases were grandfathered.
Source: COMSAT

EXHIBIT HSH-9

NEW COMSAT SERVICE OFFERINGS

EXHIBIT HSH-9

New COMSAT Service Offerings Since 1985

(Source: COMSAT)

Switched Voice and Private Line Services

- In January 1987, five- and seven-year contracts for FM voice-grade and IBS service were introduced. A three-year contract for IBS and an nine-year contract for voice were added in June 1987.

- In February 1987, COMSAT's Datanet service offering was expanded to include 1 and 5 MHz leases to make this service type more accessible for small customers. Rates for 100 kHz Datanet were established in June 1990.

- In June 1987, TDMA/DSI service was introduced on monthly, 5- and 7-year contracts.

- In January 1988, TDMA/DSI and IDR 64 kbps services were first offered. Contracts for TDMA and IDR were first offered for ten-year leases.

- In July 1990, 5- and 15-year contract terms were introduced for TDMA/DNI and IDR service. Rates for IDR and TDMA/DNI were significantly reduced.

- In September 1990, rate 3/4 FEC IBS circuits were offered.

- In April 1991, COMSAT introduced self-match bookings for occasional-use IBS service.

- In January 1992, COMSAT introduced volume discounts for IDR and TDMA service through which customers could benefit from rate reductions of at least 35.7 percent as certain threshold traffic levels were attained.

- In August 1992, COMSAT established rates for non-standard, 32 MHz preemptible Datanet leases.

- In October 1992, incremental activation of leases of 9 MHz or less for international VSAT networks was first offered to allow customers to grow their VSAT networks in contiguous bandwidth and benefit from the 9 MHz bulk rate.

- In June 1993, COMSAT established bandwidth-on-demand service offering switchable full duplex connections at data rates ranging from 64 kbps to 2.048 Mbps on a non-preemptible basis.

- Recently, COMSAT also started to offer wideband mobile service that provides full-time private line communications services to the maritime industry. This service is different from INMARSAT's L-band service which does not provide sufficient capacity to accommodate full-time wideband service.

Video and Audio Service

- In December 1987, COMSAT first established the terms and conditions for self-match bookings for occasional-use video service.

- In January 1989, COMSAT also introduced "one-week full-period" video leases for one week. In May 1990, one-month full-period leases were introduced.

- In August 1990, short-term full-period video leases were first introduced on inclined orbit satellites offering 47 percent savings over leases on station-kept satellites.

- In May 1991, inclined-orbit rates were first introduced for long-term full-period leases at discounts ranging from 59 to 67 percent in the initial year.

- In August 1991, COMSAT introduced non-preemptible video service on the Intelsat-K satellite. This service offer first introduced pre-launch rates and an optional ramped payment schedule.

- In February 1992, COMSAT introduced digital audio service for simplex, point-to-multipoint distribution of high-quality radio programming.

- In March 1992, COMSAT introduced "steerable spot beam service" for video applications allowing additional flexibility for full-period video customers' news gathering from several continents.

- In September 1992, an analog-to-digital preemptible video service was introduced. The service allowed customers to convert from analog to digital service within the same lease term.

- In December 1993, COMSAT introduced a new service specialized for satellite news gathering. SNG service allows customers to order as a package video, audio and private line services.

EXHIBIT HSH-10

COST AND CAPACITY DATA OF TRANS-OCEANIC FACILITIES

Exhibit HSH–10.1

Cumulative INTELSAT Capacity

AOR REGION

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Notes
INTELSAT IV F1	3,300											
INTELSAT IV F4	5,500	5,500	5,500									
INTELSAT V F2	13,475	13,475	13,475	13,475	13,475	13,475	13,475	13,475	13,475	13,475	13,475	Inclined Orbit
INTELSAT V F3	13,475	13,475										
INTELSAT V F4	13,475	13,475	13,475	13,475	13,475	13,475		13,475	13,475			Inclined Orbit
INTELSAT V/M F6	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	Inclined Orbit
INTELSAT VA F10	14,850	14,850	14,850	14,850								
INTELSAT VA F11	14,850	14,850	14,850	14,850								
INTELSAT VB F13			14,850	14,850	14,850	14,850	14,850	14,850	14,850	14,850	14,850	
INTELSAT VA F12				14,850	14,850	14,850	14,850	14,850	14,850			Inclined Orbit
INTELSAT VI F2					24,200							
INTELSAT VI F4					24,200	24,200						
INTELSAT VI F5						24,200	24,200	24,200	24,200	24,200	24,200	
INTELSAT VI F1							24,200	24,200	24,200	24,200	24,200	
INTELSAT VI F3							24,200	24,200	24,200	24,200	24,200	
INTELSAT VA F15							14,850	14,850	14,850	14,850	14,850	
INTELSAT K							8,800	8,800	8,800	8,800	8,800	
INTELSAT VII F2									17,050	17,050	17,050	
INTELSAT VII F5										17,050	17,050	
INTELSAT VIIA F6										19,250	19,250	
INTELSAT VIIA F7										19,250	19,250	
INTELSAT VII F3											17,050	
INTELSAT VIII F4											20,900	
TOTAL	90,200	86,900	88,275	97,625	116,325	116,325	150,700	164,175	181,225	208,450	246,400	

POR REGION

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Notes
INTELSAT IV F6	5,500											
INTELSAT IV F3	5,500	5,500	5,500									
INTELSAT V F1	13,475	13,475		13,475		13,475						
INTELSAT V/M F8	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	11,275	Inclined Orbit
INTELSAT V F3			13,475	13,475	13,475	13,475	13,475	13,475				Inclined Orbit
INTELSAT VA F10					14,850	14,850	14,850	14,850				Inclined Orbit
INTELSAT VA F11							14,850	14,850	14,850	14,850		Inclined Orbit
INTELSAT VII F1								17,050	17,050	17,050	17,050	
INTELSAT VII F3									17,050	17,050		
INTELSAT VIII F1											20,900	
INTELSAT VIII F2											20,900	
TOTAL	35,750	30,250	30,250	38,225	39,600	53,075	54,450	71,500	60,225	60,225	70,125	

All circuits are in 64 kbps – equivalents.
Source: COMSAT.

Exhibit HSH – 10.1

INTELSAT Data: Region, Costs, Capacity, Launch Year and Life

Assumptions for Satellite Cost per Month per Unit of Capacity			
Discount Rate	Tax Rate	O&M's % of Total Cost	Capacity Utilization
[1]	[2]	[3]	[4]
12%	35%	4%	60%

Satellite [5]		Current Region [6]	Direct Cost ($millions) [7]	Capacity (64 kbps Circuits) [8]	Start Year [9]	End of Manuverable Life [10]	Useful Life in Stationary Orbit [11]	Monthly Cost ($millions) [12]	Cost per Month per Unit of Capacity ($/64 kbps Circuits) [13]	Notes [14]
INTELSAT IV F1		Retired in 1987		3,300		NA				
INTELSAT IV F6		Retired in 1987		6,500		NA				
INTELSAT IV F4		Retired in 1989		6,500		NA				
INTELSAT IV F3		Retired in 1989		6,500		NA				
INTELSAT V F2	Inclined Orbit	AOR	$99	13,475	1980	1986	6	$2.1	$191	
INTELSAT V F1	Inclined Orbit	APR	$99	13,475	1981	NA	15	$1.7	$158	
INTELSAT V F3	Inclined Orbit	POR	$99	13,475	1981	1989	8	$2.1	$191	
INTELSAT V F4	Inclined Orbit	AOR	$100	13,475	1982	1989	7	$2.2	$205	
INTELSAT V/M F5	Inclined Orbit	IOR	$125	11,275	1982	1989	7	$2.8	$305	
INTELSAT V/M F6	Inclined Orbit	AOR	$138	11,275	1983	1991	8	$2.9	$317	
INTELSAT V/M F7	Inclined Orbit	IOR	$98	11,275	1983	1990	7	$2.2	$239	
INTELSAT V/M F8	Inclined Orbit	POR	$93	11,275	1984	1991	7	$2.1	$228	
INTELSAT VA F10	Inclined Orbit	POR	$154	14,850	1985	1992	7	$3.4	$285	
INTELSAT VA F11	Inclined Orbit	POR	$154	14,850	1985	1993	8	$3.2	$269	
INTELSAT VA F12	Inclined Orbit	AOR	$146	14,850	1985	1993	8	$3.0	$255	
INTELSAT VB F13		AOR	$133	14,850	1988	1995	7	$2.9	$246	
INTELSAT VA F15		AOR	$128	14,850	1989	1997	8	$2.7	$224	
INTELSAT VI F2		IOR	$263	24,200	1990	2002	12	$5.1	$265	
INTELSAT VI F4		IOR	$343	24,200	1990	2002	12	$6.2	$320	
INTELSAT VI F5		AOR	$264	24,200	1991	2006	15	$4.9	$252	
INTELSAT VI F1		AOR	$345	24,200	1992	2006	14	$6.0	$310	
INTELSAT K		AOR	$207	8,800	1992	2004	12	$3.7	$531	[15]
INTELSAT VI F3		AOR	$342	24,200	1992	2003	11	$6.3	$328	
INTELSAT VII F1		POR	$266	17,050	1993	NA	15	$4.6	$334	
INTELSAT VII F2		AOR	$256	17,050	1994	NA	15	$4.4	$322	
INTELSAT VII F3		POR	$260	17,050	1994	NA	15	$4.5	$327	
INTELSAT VII F4		IOR	$272	17,050	1994	NA	15	$4.7	$342	
INTELSAT VII F5		AOR	$273	17,050	1995	NA	15	$4.7	$343	
INTELSAT VIIA F6		AOR	$365	19,250	1995	NA	15	$6.3	$407	
INTELSAT VIIA F8		IOR	$257	19,250	1995	NA	15	$4.4	$286	
INTELSAT VIIA F9		APR	$224	19,250	1995	NA	15	$3.8	$249	
INTELSAT VIII F1		POR	$217	20,900	1996	NA	15	$3.7	$222	
INTELSAT VIII F2		POR	$217	20,900	1996	NA	15	$3.7	$222	
INTELSAT VIII F3		IOR	$186	20,900	1996	NA	15	$3.2	$191	
INTELSAT VIII F4		AOR	$190	20,900	1996	NA	15	$3.3	$195	

NOTES:

[6] Exhibit HSH–10.1, page 1; as of 1993 year–end.

[7] Exhibit HSH–10.1, page 3.

[8],[10] COMSAT.

[9] Available FCC Launch Applications or FCC Filings unless COMSAT specifies otherwise.

[11] Useful life in Stationary Orbit is derived from End of Manuverable Life [10], if available. Otherwise it is assumed to be 15 years.

[12] = ((A – D) / (1 – [2]) + D + O) / 12

where A = annuity that covers the cost of the asset over its lifetime.

and D = annual straight–line depreciation cost = [7] / [11]

and O = annual O & M Costs = [3]*[7]

[13] = [12] / ([8] * [4]).

[15] The INTELSAT–K satellite is specialized for video service, therefore the cost per 64 kbps circuit is not representative. On INTELSAT–K, bandwidth was traded for power because its principal application is television transmission to small receive stations.

Exhibit HSH – 10.1

SATELLITE Cost Data (includes PanAmSat and TRW/Pacificom – 1)

Satellite [1]	Launch Costs [2]	Satellite Cost [3]	Incentives [4]	Launch Support [5]	Insurance Equivalent [6]	Uplink/ Downlink [7]	DIRECT COST [8]	Capacity (64 kbps Circuits) [9]	Source [10]
INTELSAT VF2	40.6	25.1	8.5	0.3	14.84	10	99.34	13,475	COMSAT. RE: Launch Authorization Request.
INTELSAT VF1	40.6	25.1	8.3	0.3	14.8	10	99.1	13,475	COMSAT. RE: Launch Authorization Request.
INTELSAT VF3	40.6	25.1	8.4	0.3	14.82	10	99.22	13,475	COMSAT. RE: Launch Authorization Request.
INTELSAT VF4	40.6	25.7	8.7	0.3	15	10	100.3	13,475	COMSAT. RE: Launch Authorization Request.
INTELSAT V/MF5	51.3	33.2	11.2	0.3	19.14	10	125.14	11,275	COMSAT. RE: Launch Authorization Request.
INTELSAT V/MF6	58.7	36.3	11.1	0.3	21.22	10	137.62	11,275	Launch Authorization Request (1/17/83).
INTELSAT V/MF7	25.4	36.6	11.1	0.3	14.62	10	98.02	11,275	COMSAT. RE: Launch Authorization Request.
INTELSAT V/MF8	27.6	32.4	9.2	0.3	13.84	10	93.34	11,275	Launch Authorization Request (11/22/83).
INTELSAT VAF10	69.7	38.9	11.2	0.3	23.96	10	154.06	14,850	Launch Authorization Request (11/28/84).
INTELSAT VAF11	69.7	38.9	11.2	0.3	23.96	10	154.06	14,850	Launch Authorization Request (4/30/85).
INTELSAT VAF12	63.1	38.9	11.2	0.3	22.64	10	146.14	14,850	Launch Authorization Request (7/12/85).
INTELSAT VBF13	36.9	49.6	14.9	1.2	20.28	10	132.88	14,850	FCC File No. CSS-87-009-LA (Released 5/3/88).
INTELSAT VAF15	37.4	46	14.1	1.2	19.5	10	128.2	14,850	Launch Authorization Request (12/1/88).
INTELSAT VIF2	70	128.4	26.2	3.9	44.92	10	283.42	24,200	Launch Authorization Request (9/22/89).
INTELSAT VIF4	121.4	129.3	26.8		55.46	10	342.76	24,200	Launch Authorization Request Update (6/14/90).
INTELSAT VIF5	78.1	123.1	25.9	1.7	45.42	10	284.22	24,200	Launch Authorization Request (3/30/87).
INTELSAT VIF1	114.7	136.1	27.1	1.7	55.58	10	345.18	24,200	Launch Authorization Request (9/11/91).
INTELSAT K	60	87.1	15	2.2	32.42	10	206.72	8,800	Launch Authorization Request (5/18/90).
INTELSAT VIF3	121.4	129.2	26.3		55.38	10	342.28	24,200	Launch Authorization Request Update (3/5/90).
INTELSAT VII F1	105.9	78.1	26.3	3.2	42.06	10	265.56	17,050	Launch Authorization Request (5/18/90).
INTELSAT VII F2	98.3	78.1	26.3	3.2	40.54	10	256.44	17,050	Launch Authorization Request (5/18/90).
INTELSAT VII F3	99.8	79.1	26.6	3.2	41.1	10	259.8	17,050	Launch Authorization Request (5/18/90).
INTELSAT VII F4	109.6	79.1	26.7	3.2	43.08	10	271.68	17,050	Launch Authorization Request (5/18/90).
INTELSAT VII F5	110.7	79.1	26.7	3.2	43.3	10	273	17,050	Launch Authorization Request (5/18/90).
PAS-2	90.7	105.6			37.3	10	243.7	18,415	PanAmSat SEC Form S-1, 5/93. [11]
PAS-3	90.7	105.6			37.3	10	243.7	18,415	PanAmSat SEC Form S-1, 5/93. [12]
INTELSAT VIIA F6	130.1	123.5	37.6	5.9	58.24	10	365.34	19,250	Launch Authorization Request (12/8/93).
INTELSAT VIIA F7	132.1	123.9	37.6	5.9	58.72	10	368.22	19,250	Launch Authorization Request (12/8/93).
INTELSAT VIIA F8	56	111.1	33.8	5.5	40.16	10	256.58	19,250	Launch Authorization Request (12/16/93).
INTELSAT VIIA F9	83.2	78	11.7	6.3	34.58	10	223.78	19,250	Launch Authorization Request (10/29/93).
INTELSAT VIII F1	87	75.6	6.9	3.1	33.9	10	216.5	20,900	Launch Authorization Request (12/16/92).
INTELSAT VIII F2	87	75.6	6.9	3.1	33.9	10	216.5	20,900	Launch Authorization Request (12/16/92).
INTELSAT VIII F3	84.3	53.8	6.9	2.3	29	10	186.3	20,900	Launch Authorization Request (12/15/93).
INTELSAT VIII F4	85.3	53.8	9.1	2.3	29.64	10	190.14	20,900	Launch Authorization Request (12/15/93).
TRW/Pacificom-1	54	107		13.6	32.2	10	216.8	8,800	FCC File No. CSS-91-012 [13]

NOTES:

[4] Incentives include capitalized and expensed incentives.

[6] Insurance Equivalent is 20% of the sum of Launch Cost, Satellite Cost, and Incentives. PanAmSat takes Insurance Equivalent data from SEC Filing.

[7] Uplink/Downlink costs are COMSAT estimates for two high-capacity earth stations.

[8] Satellite Cost includes Parallel Integration and Spare Components for Spare Satellite.

[11],[12] PanAmSat Launch costs include $24.7 million for Ground Facility and Development Costs. Total cost does not include $10.3 million for debt repayment and $10.0 million for tax distribution.

[13] TRW/Pacificom-1 Satellite Costs includes Spare Equipment. Launch support includes Pre-Launch Expenses & Contingency, as well as the Tracking, Telemetry and Control and TRW Operations Control Center Facilities.

Exhibit HSH–10.2

Cumulative SSS Capacity

AOR REGION

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Source
PAS–1			9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	PanAmSat SEC Form S–1, 5/93.
TDRSS East			3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	FCC File Nos. CSS–90–010 and –011.
Gorizont 20					1,925	1,925	1,925	1,925	1,925	1,925	1,925	World Satellite Almanac.
Gorizont 26							1,925	1,925	1,925	1,925	1,925	World Satellite Almanac.
Hispasat 1A							0	0	0	0	0	World Satellite Almanac.
Hispasat 1B								550	550	550	550	World Satellite Almanac.
Globostar										4,400	4,400	1993 Global Information Systems Brochure.
PAS–3										18,415	18,415	PanAmSat SEC Form S–1, 5/93.
Orion 1										17,050	17,050	FCC File No. CSS–83–002–P–(M).
TOTAL	0	0	13,200	13,200	15,125	15,125	17,050	17,600	17,600	57,465	57,465	

POR REGION

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Source
Gorizont 17/27				1,925	1,925	1,925	1,925	1,925	1,925	1,925	1,925	World Satellite Almanac.
Gorizont 24						1,925	1,925	1,925	1,925	1,925	1,925	World Satellite Almanac.
TDRSS West						3,300	3,300	3,300	3,300	3,300	3,300	FCC File Nos. CSS–90–010 and –011.
PAS–2									18,415	18,415	18,415	PanAmSat SEC Form S–1, 5/93.
Rimsat (Express)										3,300	3,300	Via Satellite (6/93).
TRW/Pacificom–1											8,800	FCC File No. CSS–91–012
TOTAL	0	0	0	1,925	1,925	7,150	7,150	7,150	25,565	28,865	37,665	

All circuits are in 64 kbps–equivalents.
Source: Exhibit HSH–10.2, page 2.

Exhibit HSH – 10.2

SSS Data: Region, Costs, Capacity, Launch Year and Life

Inputs for Satellite Cost per Month per Unit of Capacity			
Discount Rate [1]	Tax Rate [2]	O&M's % of Total Cost [3]	Capacity Utilization [4]
12%	35%	4%	80%

SSS [5]	Current Region [6]	Direct Cost ($millions) [7]	Capacity (64 kbps Circuits) [8]	Launch Year [9]	Useful Life in Stationary Orbit [10]	Monthly Cost ($millions) [11]	Costs per Month per Unit of Capacity ($/64 kbps Circuits) [12]	Source [13]	
PAS-1	AOR		8,900	1988	13			PanAmSat SEC Form S-1, 5/93.	[14]
TDRSS East	AOR		3,300	1988	15			FCC File Nos. CSS-90-010 and -011.	[15]
Gorizont 17/27	POR		1,925	1989	3			World Satellite Almanac.	[16]
Gorizont 20 (Intersputnik)	AOR		1,925	1990	3			World Satellite Almanac.	[17]
Gorizont 24 (Intersputnik)	POR		1,925	1991	3			World Satellite Almanac.	[18]
TDRSS West	POR		3,300	1991	15			FCC File Nos. CSS-90-010 and -011.	[19]
Gorizont 26	AOR		1,925	1992	3			World Satellite Almanac.	[20]
Hispasat 1A	AOR		0	1992	10			World Satellite Almanac.	[21]
Hispasat 1B	AOR		550	1993	10			World Satellite Almanac.	[22]
PAS-2	POR	$244	18,415	1994	15	$4.2	$284	PanAmSat SEC Form S-1, 5/93.	
Globostar	AOR		4,400	1995	15			1993 Global Information Systems Brochure.	[23]
PAS-3	AOR	$244	18,415	1995	15	$4.2	$284	PanAmSat SEC Form S-1, 5/93.	
Orion 1	AOR		17,050	1995	15			FCC File No. CSS-83-002-P-(M).	[24]
Rimsat (Express)	POR		3,300	1995	7			Via Satellite (6/93).	[25]
TRW/Pacificom-1	POR	$217	8,800	1998	12	$3.9	$557	FCC File No. CSS-91-012	[26]

NOTES:

[7] Exhibit HSH-10.1, page 3.
[8] For high-powered satellites (such as PAS 2-4 and IS-K) each 27 MHz transponder is assumed equal to 550/2 64 kbps duplex circuits. For lower-powered satellites each 36 Mhz transponder is assumed to be equal to 550/2 64 kbps duplex circuits.
[9] Launch Year is from NASA's Synchronous Satellite Catalog, February 1994.
[10] If the source doesn't give the Useful life in Stationary Orbit it is assumed to be 15 years.
[11] = ((A – D) / (1 – [2]) + D + O) / 12
where A = annuity that covers the cost of the asset over its lifetime.
and D = annual straight-line depreciation cost = [7] / [10]
and O = annual O & M Costs = [3]*[7]
[12] = [11] / ([8] * [4]).
[14] Useful life is from PanAmSat SEC Form S-1, 5/93.
[15],[19] Columbia Communications Corporation leased a total of 24 C-band 36 Mhz transponders on 2 of NASA's TDRSS satellites. One satellite was for trans-Atlantic use and the other was for trans-Pacific use. These satellites are TDRSS East and West, respectively.
[16] Gorizont satellites are replaced frequently, therefore Gorizont 17's current orbital spot may be served by different Gorizont satellites in other years. Gorizont 17 is replaced by Gorizont 27 at the Statsionar 5 orbital location in 1992 (See NASA's February 1994 Synchronous Satellite Catalog). Useful Life is from Via Satellite, June 1993.
[17] Gorizont satellites are replaced frequently, therefore Gorizont 20's current orbital spot may be served by different Gorizont satellites in other years. Gorizont 20 is located in the Statsionar 4 orbital location. Intersputnik leases the Gorizont satellite assigned to this location. Gorizont 20 may be replaced by Romantis Satellite in 1994. Design capacity would increase to at least 5,500 64 kbps-equivalent circuits. Useful Life is from Via Satellite, June 1993.
[18] Gorizont satellites are replaced frequently, therefore Gorizont 24's current orbital spot may be served by different Gorizont satellites in other years. Gorizont 24 is located in the Statsionar 13 orbital location. Intersputnik leases the Gorizont satellite assigned to this location. Useful Life is from Via Satellite, June 1993.
[20] Gorizont satellites are replaced frequently, therefore Gorizont 26's current orbital slot may be served by different Gorizont satellites in other years. Gorizont 26 is currently in the Statsionar 11 orbital location. A service the Gorizont satellite in this location provides is video transmission to North America. Useful Life is from Via Satellite, June 1993.
[21] Hispasat 1A's trans-Atlantic transponders are not functional (see "Cable and Satellite Europe", January 1994). Useful life is from World Satellite Almanac.
[22] Of Hispasat 1B's 24 transponders designed, only 2 are trans-Atlantic. Useful life is from World Satellite Almanac.
[23] The Globostar satellite at the 355 degree orbital is the only GIS satellite which can reach the U.S. Launch Year is from Asiapacific Space Report, 12/93-1/94.
[24] Orion 1 has 6 36 Mhz transponders and 28 54 Mhz transponders (Source: Orion Brochure). The launch date is from COMSAT.
[25] Rimsat leases the Express satellites from Russia and the orbital slots from Tongasat. The Express satellites were designed to replace the Gorizont satellites. Region and Launch Year from PR Newswire, 3/8/94. Useful life is from Via Satellite, June 1993.
[26] TRW/Pacificom-1 has 6 72 Mhz, 7 54 Mhz, 2 36 Mhz, and 4 27 Mhz transponders. Useful Life is from FCC application.

Exhibit HSH-10.3

Cumulative Cable Capacity

East Asia/Oceania

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Source
HAW-2/TPC-1	142	142	142	142	142	142	142	RETIRED				1990's World Telephone Submarine Cable Systems.
HAW-3/TPC-2	845	845	845	845	845	845	845	RETIRED				1990's World Telephone Submarine Cable Systems.
ANZCAN	1,380	1,380	1,380	1,380	1,380	1,380	1,380	1,380	1,380	1,380	1,380	1990's World Telephone Submarine Cable Systems.
HAW-4/TPC-3			7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	FCC File No. ITC-85-219.
NPC						12,096	12,096	12,096	12,096	12,096	12,096	FCC File No. ISCL-88-002 and Telecom. Rep. 5/91.
TPC-4							15,120	15,120	15,120	15,120	15,120	FCC File No. ITC-89-088.
HAW-5/PACRIM East								7,560	7,560	7,560	7,560	FCC File Nos. ITC-90-081 and ITC-90-072.
TPC-5											120,960	FCC File No. ITC-92-179.
TOTAL	2,367	2,367	9,927	9,927	9,927	22,023	37,143	43,716	43,716	43,716	164,676	

Europe/Mediterranean/Middle East

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Source
TAT-4	138	RETIRED										1990's World Telephone Submarine Cable Systems.
TAT-5	845	845	845	845	845	845	845	RETIRED				1990's World Telephone Submarine Cable Systems.
TAT-6	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	1990's World Telephone Submarine Cable Systems.
TAT-7	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	1990's World Telephone Submarine Cable Systems.
TAT-8			7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	FCC File No. ITC-84-072.
PTAT-1				17,010	17,010	17,010	17,010	17,010	17,010	17,010	17,010	1990's World Telephone Submarine Cable Systems.
TAT-9							15,120	15,120	15,120	15,120	15,120	FCC File No. ITC-88-181.
TAT-10							22,680	22,680	22,680	22,680	22,680	FCC File No. 91-135.
TAT-11								22,680	22,680	22,680	22,680	FCC File No. 91-136.
CANUS-1/CANTAT-3									30,240	30,240	30,240	Telecommunications Reports 3/92 and Reuters 5/93.
COLUMBUS-2									22,680	22,680	22,680	FCC File No. ITC-93-029.
TAT-12/TAT-13											120,960	FCC File No. ITC-93-062.
TOTAL	9,229	9,091	16,651	33,661	33,661	33,661	71,461	93,296	146,216	146,216	267,176	

All circuits are in 64 kbps-equivalents

Source: Exhibit HSH-10.3

Exhibit HSH-10.3

Cumulative Cable Capacity

Caribbean/Latin America

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Source
Key West-Havana	24	24	24	RETIRED								1990's World Telephone Submarine Cable Systems.
BER-1	82	82	82	82	RETIRED							1990's World Telephone Submarine Cable Systems.
Florida-Jamaica	144	144	144	144	144	144	144	RETIRED				1990's World Telephone Submarine Cable Systems.
Florida-St. Thomas No. 1	142	142	142	RETIRED								1990's World Telephone Submarine Cable Systems.
Florida-St. Thomas No. 2	845	845	845	845	845	845	845	RETIRED				1990's World Telephone Submarine Cable Systems.
CANBER	480	480	480	480	480	480	480	RETIRED				1990's World Telephone Submarine Cable Systems.
Florida-Bahamas	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	1990's World Telephone Submarine Cable Systems.
Florida-St. Thomas No. 3	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	1990's World Telephone Submarine Cable Systems.
U.S.-Cuba No. 7				143	143	143	143	143	143	143	143	1990's World Telephone Submarine Cable Systems.
PTAT-1/CARAC				5,760	5,760	5,760	5,760	5,760	5,760	5,760	5,760	1990's World Telephone Submarine Cable Systems.
TCS-1					2,880	2,880	2,880	2,880	2,880	2,880	2,880	FCC File No. ITC-88-071.
Trans-Gulf									7,560	7,560	7,560	FCC File SCL-90-006.
AMERICAS-1									18,900	18,900	18,900	FCC File No. ITC-93-030.
COLUMBUS-2									18,900	18,900	18,900	FCC File No. ITC-93-029.
TOTAL	6,097	6,097	6,097	11,834	14,632	14,632	14,632	13,163	58,523	58,523	58,523	

All circuits are in 64 kbps-equivalents

Source: Exhibit HSH-10.3

Trans–Pacific Cables to East Asia/Oceania: Costs, Capacity, Start Year, Life.

Assumptions for Monthly Cable Cost and Monthly Cost per Circuit				
Discount Rate [1]	Tax Rate [2]	O&M's % of Total Cost [3]	Default Years of Life [4]	Capacity Utilization [5]
12%	35%	4%	25	80%

FIBER OPTIC CABLE [6]	Region [7]	Starting Point [8]	Ending Points [9]	Relevant Cost ($millions) [10]	Design Capacity (64 kbps Circuits) [11]	Notional Capacity (64 kbps Circuits) [12]	AT&T Notional Capacity (64 kbps Circuits) [13]	Estimated Length (kms) [14]	Start Year [15]	Retirement Year [16]	Useful Life [17]	Monthly Cost ($millions) [18]	Cost per Month per Unit of Capacity ($/64 kbps Circuits) [19]	Source [20]	
HAW–4/TPC–3	East Asia/Oceania	U.S.	Hawaii, Guam, Japan, Philippines	593	7,560	7,560	5,095	11,700	1988		25	$9.6	$1,582	FCC File No. ITC–85–219.	[21]
NPC	East Asia/Oceania	U.S.	Alaska, Japan	425	12,096		8,397	9,397	1991		25	$6.9	$709	FCC File No. ISCL–86–002 and Telecom. Rep. 5/91.	[22]
TPC–4	East Asia/Oceania	U.S.	Canada, Japan	354.6	15,120	14,430	8,810	9,850	1992		25	$5.7	$473	FCC File No. ITC–89–086.	[23]
HAW–5/PACRIM East	East Asia/Oceania	U.S.	Hawaii, New Zealand	478.6	7,560	3,536	1,020	11,800	1993		25	$7.7	$1,277	FCC File Nos. ITC–90–081 and ITC–90–072.	[24]
TPC–5	East Asia/Oceania	U.S.	Japan, Guam, Hawaii	1,015	120,960	73,710	27,330	19,700	1996		25	$18.4	$169	FCC File No. ITC–92–179.	[25]
COPPER CABLE [26]	[27]	[28]	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	
HAW–2/TPC–1	East Asia/Oceania	U.S.	Hawaii, Midway, Wake, Guam, Japan	99.09	142	139	72	3,848	1964	1993	29			1990's World Telephone Submarine Cable Systems.	[41]
HAW–3/TPC–2	East Asia/Oceania	U.S.	Hawaii, Guam, Japan	192.6	845	743	479	3,483	1976	1993	17			1990's World Telephone Submarine Cable Systems.	[42]
ANZCAN	East Asia/Oceania	Canada	Hawaii, Fiji, Norfolk, N.Z., Australia	406	1,360			4,987	1964		25			1990's World Telephone Submarine Cable Systems.	[43]

NOTES:

* For all capacity figures 630 64 kbps = 1 Duplex DS–3.

[10] Relevant Cost is the cost of the trans–oceanic segment only (when data are available). Interest during construction and DCME equipment are excluded where possible.

[11] The capacity is the lowest capacity of all the trans–oceanic portions of the cable. For cables with landing points in Hawaii, the capacity is of that segment (either Hawaii to East Asia/Oceania or U.S. to Hawaii) which has the lowest capacity. Design Capacity is defined as the cable's total useable capacity in 64 kbps. Design Capacity does not include capacity designated for cable restoration or capacity on standby pairs.

[12],[13] The notional capacity is taken from the same segment where the capacity is taken. In those cables that have landing points in Hawaii, the notional capacity of the Hawaii to East Asia/Oceania segment is used. However, in the case where AT&T's activated circuits are higher than the notional capacity of the segment leaving Hawaii, the notional capacity of the U.S. to Hawaii segment is taken.

[14] COMSAT, if other source is not available.

[17] If data are not available, Useful life is assumed to equal Retirement Year minus Start Year. If Retirement Year or Start Year is not available, Useful Life is assumed to equal 25.

[18] = ((A – D) / (1 – [2]) + D + O) / 12

where A = annuity that covers the cost of the asset over its life–time.

and D = annual straight–line depreciation cost = [10] / [17]

and O = annual O & M Costs = [4]*[10]

[19] = [18] / ([11] * [5]).

[21] For HAW–4/TPC–3, all dollar figures are in January 1987 dollars. File released in January 1986. The cost data for HAW–4/TPC–3 are overstated because no segment cost was available. The cost given is for all cables in network. Capacity equals total capacity leaving Hawaii (TPC–3 cable). Length data are of Segment B (Mainland to Hawaii), Segment D1 (Hawaii to the Branching Unit in the Pacific, and Segment D2 (Branching Unit in the Pacific to Japan).

[22] NPC cost is an estimate based on a $400 million to $450 million range given in Telecommunications Reports, May 1991. NPC capacity is of the U.S. (Mainland) to Japan segment. Capacity data are from FCC File No. ISCL–86–002. Capacity may be 17,010 circuits (see Telecommunications Reports). No segment data are available. Length is from brochure and is of the segments from Oregon to the U.S. branching unit to Japan.

[23] TPC–4 cost include all three cable stations (total cost for stations was given). Capacity is of Subsegment B2 (Branching Unit of U.S. and Canada to Japan). Length is of entire system.

[24] HAW–5/PACRIM East cost is total cost of each cable. Capacity and notional capacity are that of PACRIM East (Hawaii to Zealand). Length is of entire system.

[25] TPC–5 cost data do not include cost of Segments T1 (Coos Bay, U.S. to San Luis Obispo, U.S.) and T2 (Ninomiya, Japan to Miyazaki, Japan). Capacity data for TPC–5 include capacity of Segment J plus Segment G, but exclude capacity assigned for restoration purposes (96 Duplex DS–3s for Segments J and G each). Notional capacity is based on Segments J and G. Length is based on Segments J, G and H.

[30],[31],[32],[33],[34],[37],[38],[39] See [10],[11],[12],[13],[14],[17],[18],[19] respectively.

[41] Cost is of both HAW–2 and TPC–1. HAW–2 and TPC–1 both have a landing point in Makaha, Hawaii. Capacity and notional capacity are that of TPC–1. Length is in miles and is that of the TPC–1 cable from Hawaii to Midway Island to Wake Island to Guam. Retirement year is based on the assumption that if AT&T has deactived all circuits on a cable in a given year, the cable has been retired.

[42] Both TPC–2 and HAW–3 have a landing point in Makaha, Hawaii. TPC–2 has two connecting cables, Transpac 2 A and B. Cost data are that of both HAW–3 and TPC–2. Capacity and notional capacity are that of HAW–3 (constructed in 1974) which connects Hawaii to the U.S. mainland. Length is that of the TPC–1 segment from Hawaii to Guam. Retirement year is based on the assumption that if AT&T deactived all circuits on a cable in a given year, the cable has been retired.

[43] ANZCAN cost is of entire system. Capacity is that of Canada to Hawaii to Fiji to Norfolk Island to Australia segments. AT&T has no ownership interests listed. The length is of Hawaii to Fiji to Norfolk Island to Australia segments.

Exhibit HSH-10.3

Trans-Atlantic Cables to Europe/Mediterranean/Middle East: Costs, Capacity, Start Year, Life.

Assumptions for Monthly Cable Cost and Monthly Cost per Circuit				
Discount Rate	Tax Rate	O&M's% of Total Cost	Default Years of Life	Capacity Utilization
[1]	[2]	[3]	[4]	[5]
12%	38%	4%	25	60%

FIBER OPTIC CABLE [6]	Region [7]	Starting Point [8]	Ending Points [9]	Relevant Cost ($millions) [10]	Design Capacity (64 kbps Circuits) [11]	Notional Capacity (64 kbps Circuits) [12]	AT&T Notional Capacity (64 kbps Circuits) [13]	Estimated Length (nms) [14]	Start Year [15]	Retirement Year [16]	Useful Life [17]	Monthly Cost ($millions) [18]	Cost per Month per Unit of Capacity ($/64 kbps Circuits) [19]	Source [20]
TAT-8	Eur Med/M East	US.	France, UK.	301.9	7,640	7,640	5,150	3,425	1988		25	$4.9	$605	FCC File No. ITC-84-072. [21]
PTAT-1	Eur Med/M East	US.	Bermuda, Ireland, U.K.	380	17,010			6,265	1989		25	$5.6	$415	1990's World Telephone Submarine Cable Systems. [22]
TAT-9	Eur Med/M East	US.	Canada, France, Spain, UK.	276.1	15,120	15,120	8,000	9,600	1992		25	$4.4	$386	FCC File No. ITC-86-189. [23]
TAT-10	Eur Med/M East	US.	Germany, Netherlands	272	22,680	16,560	7,020	7,700	1992		25	$4.4	$242	FCC File No. 91-135. [24]
TAT-11	Eur Med/M East	US.	France, UK.	280	22,680	12,330	6,240	6,900	1993		25	$4.5	$249	FCC File No. 91-135. [25]
CANUS-1/CANTAT-3	Eur Med/M East	US	Canada, Denmark, Germany, Iceland, UK.	385	30,240			7,537	1994		25	$6.2	$257	Telecommunications Reports 3/92 and Reuters 5/93. [26]
COLUMBUS-2	Eur Med/M East	US.	Mexico, St. Thomas, Spain, Italy, Portugal	331.5	22,680	14,860	4,140	12,200	1994		25	$5.3	$285	FCC File No. ITC-93-028. [27]
TAT-12/TAT-13	Eur Med/M East	US.	France, UK.	685	120,960	59,430	28,680	13,200	1996		25	$11.1	$114	FCC File No. ITC-93-062. [28]
COPPER CABLE [29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]	[41]	[42]	[43]
TAT-4	Eur Med/M East	US.	France	50.4	138	120	64	3,599	1965	1987	22			1990's World Telephone Submarine Cable Systems. [44]
TAT-5	Eur Med/M East	US.	Spain	79	845	721	503	3,461	1970	1993	23	$1.3	$1,885	1990's World Telephone Submarine Cable Systems. [45]
TAT-6	Eur Med/M East	US.	France	197	4,000	2,372	1,885	3,395	1976		25			1990's World Telephone Submarine Cable Systems. [46]
TAT-7	Eur Med/M East	US.	UK.	180	4,245			3,295	1983		25	$2.9	$655	1990's World Telephone Submarine Cable Systems. [47]

NOTES:

* For all capacity figures 630 64 kbps = 1 Duplex DS-3.

[10] Relevant Cost is the cost of the trans-oceanic segment only (when data are available). Interest during construction and DCME equipment are excluded where possible.

[11] The capacity is the lowest capacity of all the trans-oceanic portions of the cable. Design Capacity is defined as the cable's total usable capacity in 64 kbps. Design Capacity does not include capacity designated for cable restoration or capacity on standby pairs.

[12],[13] The notional capacity is taken from the same segment where the capacity is taken.

[14] COMSAT, if other source is not available.

[17] If data are not available, Useful Life is assumed to equal Retirement Year minus Start Year. If Retirement Year or Start Year is not available, Useful Life is assumed to equal 25.

[18] = ((A - D) / (1 - [2]) + D + O) / 12

where A = annuity that covers the cost of the asset over its lifetime.

and D = annual straight-line depreciation cost = [10] / [17]

and O = annual O & M Costs = [4]*[10]

[19] = [18] / ([11] * [5]).

[21] TAT-8 cost data exclude $32.5 million cost of Segment C (US. to France) and $1 million cost of French cable station. Capacity is of Segment D-1 (US to Branching Unit in Atlantic) Length is measured in nautical miles and excludes subsegment D-3 (Branching Unit to France).

[22] PTAT-1 has no cost segment data available. Capacity does not include the fiber pair designated for standby service. The length is of the segments from the U.S. to the Bermuda Branching Unit to the Eire, Ireland Branching Unit to England.

[23] TAT-9 cost data represent Segments F2, F3 and F4 only (US. to United Kingdom). The capacity is that of Segment F3. The length is of the entire system. Start year from Telecommunications Reports, March 1992.

[24] TAT-10 cost data represent U.S. to Germany portion only. Segment costs from revised Schedule A of FCC Application. Capacity is of trans-Atlantic portion. Notional capacity is of the segments from the U.S. to Germany and the U.S. to the Netherlands.

[25] TAT-11 has no segment data available. Notional capacity data are of the segments from the U.S. to France to the UK.

[26] CANUS-1 is the U.S. to Canada cable which connects to CANTAT-3. Cost data are from Reuters, May 1993 and equals that of CANTAT-3 alone. No cost data are available for CANUS-1. Capacity is that of CANUS-1, for which 2.5 gps operating speed is estimated to be equal to 48 DS-3 capacity. Capacity and service date are from Telecommunications Reports, March 1992. Length data are that of CANTAT-3. No segment data are available for CANTAT-3.

[27] COLUMBUS-2 to Europe cost data include cost of Segment B (Florida to St. Thomas), C1 (St. Thomas to Branching Unit in Atlantic), C3 (First Branching Unit in Atlantic to Second Branching Unit in Atlantic), and C4 (Second Branching Unit in Atlantic to Italy). Cost data for COLUMBUS-2 to Europe also include cost of cable station in Mexico (no breakdown given for cable stations). Design capacity and notional capacity are that of Segment C1. Length is of entire system.

[28] TAT-12/TAT-13 cost data do not include costs of Segment F (UK. to France, which equals $56 million) and Segment H (U.S. to U.S., which equals $14 million). Capacity is that of TAT-12 plus TAT-13 (doesn't include capacity designated for restoration, which equals 96 DS-3s for TAT-12 and TAT-13 each). Length is of entire system.

[33],[34],[35],[36],[37],[40],[41],[42] See [10],[11],[12],[13],[14],[17],[18],[19] respectively.

[44],[46],[47] TAT-4, TAT-6, and TAT-7 have no segment data available for cost or capacity. Length is measured in miles and is of entire system.

[45] TAT-5 has no segment data available for cost or capacity. Length is measured in miles and is of entire system. Retirement Year based on AT&T Circuit Reports.

Exhibit HSH-10.3

Trans-Caribbean Cables to Caribbean/Latin America: Costs, Capacity, Start Year, Life.

Assumptions for Monthly Cable Cost and Monthly Cost per Circuit				
Discount Rate [1]	Tax Rate [2]	OM's % of Total Cost [3]	Default Years of Life [4]	Capacity Utilization [5]
12%	36%	4%	25	80%

FIBER OPTIC CABLE [6]	Region [7]	Starting Point [8]	Ending Points [9]	Relevant Cost ($millions) [10]	Design Capacity (64 kbps Circuits) [11]	Notional Capacity (64 kbps Circuits) [12]	AT&T Notional Capacity (64 kbps Circuits) [13]	Estimated Length (kms) [14]	Start Year [15]	Retirement Year [16]	Useful Life [17]	Monthly Cost ($millions) [18]	Cost per Month per Unit of Capacity ($/64 kbps Circuits) [19]	Source [20]
PTAT-1 /CARAC	Carb/Latin America	U.S.	Bermuda, Tortola (CARAC)		5,760			1,397	1989		25			1990's World Telephone Submarine Cable Systems. [21]
TCS-1	Carb/Latin America	U.S.	Puerto Rico, Domin. Rep., Jamaica, Colombia	133.5	2,880	2,194	1,932	2,593	1990		25	$2.2	$935	FCC File No. ITC-88-071. [22]
Trans-Gulf	Carb/Latin America	U.S.	Mexico, Cayman, Jamaica, Panama.		7,680				1994		25			FCC File SCL-90-008. [23]
AMERICAS-1	Carb/Latin America	U.S.	St. Thomas, Trinidad, Venezuela, Brazil	90.4	18,900	14,365	9,810		1994		25	$1.5	$98	FCC File No. ITC-93-030. [24]
COLUMBUS-2	Carb/Latin America	U.S.	Mexico, St. Thomas, Spain, Italy, Portugal	100.1	18,900	14,365	9,810	12,200	1994		25	$1.6	$107	FCC File No. ITC-93-029. [25]
COPPER CABLE [26]	[27]	[28]	[29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38]	[39]	[40]
Key West-Havana	Carb/Latin America	U.S.	Cuba	2.378	24			129	1950	1989	39	$0.0	$1,998	1990's World Telephone Submarine Cable Systems. [41]
BER-1	Carb/Latin America	U.S.	Bermuda	6.6	82	82	73	750	1962	1990	28	$0.1	$1,623	1990's World Telephone Submarine Cable Systems. [42]
Florida-Jamaica	Carb/Latin America	U.S.	Jamaica, Panama	20.6	144	144	102	834	1963	1989	30	$0.3	$2,685	1990's World Telephone Submarine Cable Systems. [43]
Florida-St. Thomas No. 1	Carb/Latin America	U.S.	St. Thomas	16.9	142	142	123	1,179	1964	1989	25	$0.3	$2,400	1990's World Telephone Submarine Cable Systems. [44]
Florida-St. Thomas No. 2	Carb/Latin America	U.S.	St. Thomas	32.8	845	845	719	1,299	1968	1993	25	$0.5	$789	1990's World Telephone Submarine Cable Systems. [45]
CANBER	Carb/Latin America	Canada	Bermuda	15	480	480		825	1971	1993	22	$0.2	$630	1990's World Telephone Submarine Cable Systems. [46]
Florida-Bahamas	Carb/Latin America	U.S.	Bahamas	9.2	1,360	1,360	1,360	73	1972		25	$0.1	$134	1990's World Telephone Submarine Cable Systems. [47]
Florida-St. Thomas No. 3	Carb/Latin America	U.S.	St. Thomas	77	3,000			1,120	1983		25	$1.2	$518	1990's World Telephone Submarine Cable Systems. [48]
U.S.-Cuba No. 7	Carb/Latin America	U.S.	Cuba		143	143	143	327	1989		7			1990's World Telephone Submarine Cable Systems. [49]

NOTES:

* For all capacity figures 630 64 kbps = 1 Duplex DS-3.

[10] Relevant Cost is the cost of the trans-oceanic segment only (when data are available). Interest during construction and DCME equipment are excluded where possible.

[11] The capacity is the lowest capacity of all the trans-oceanic portions of the cable. Design Capacity is defined as the cable's total usable capacity in 64 kbps. Design Capacity does not include capacity designated for cable restoration or capacity on standby pairs.

[12],[13] The notional capacity is taken from the same segment where the capacity is taken.

[14] COMSAT, if other source is not available.

[17] If data are not available, Useful life is assumed to equal Retirement Year minus Start Year. If Retirement Year or Start Year is not available, Useful Life is assumed to equal 25.

[18] = ((A - D) / (1 - [2]) + D + O) / 12

where A = annuity that covers the cost of the asset over its lifetime,

and D = annual straight-line depreciation cost = [10] / [17]

and O = annual O & M Costs = [4]*[10]

[19] = [18] / [11] * [5]).

[21] PTAT-1 cost for Caribbean segment is not available. Capacity is of the U.S. to Bermuda segment. Length is of segments from U.S. to Bermuda Branching Unit and Bermuda Branching Unit to Bermuda. CARAC has landing points in Bermuda and Tortola (in Caribbean).

[22] No TCS-1 cost data for segments or for interest during construction. Capacity is that portion of the Florico-2 cable that is ceded to TCS-1. Notional Capacity equals notional capacity multiplied by the ratio of capacity ceded to TCS-1 to total Florico-2 capacity. AT&T notional capacity does not use the ratio (see AT&T Circuit Reports). Length is from 1990 World's Submarine Telephone Cable Systems by NTIA. Length is of the entire system, not including the Florida-Puerto Rico segment.

[23] Trans-Gulf has no segment data available for cost. Capacity is of the segment that starts at the branching unit off of Mexico and goes into the Caribbean. Start Year based on the fact that AT&T had no active circuits on Trans-Gulf in the 1993 AT&T Circuit Reports and that the cable was supposed to go on-line in 1993 (based on FCC filing).

[24] AMERICAS-1 cost data based on Segment N (U.S. to St. Thomas) and cable stations in Florida and St. Thomas. All connecting segments leading South are part of the inter-region network. All capacity data are based on Segment N minus the capacity going to Europe (on COLUMBUS-2). This is done because the common segment of AMERICAS-1 and COLUMBUS-2 is used for both service to Europe and the Caribbean. This number is divided by 2 since AMERICAS-1 backs up COLUMBUS-2 and thus only has half of its designed capacity available at any given time. All notional capacity data are from COLUMBUS-2 FCC Application.

[25] COLUMBUS-2 to Caribbean/Latin America cost data include cost of Segment B (U.S. to St. Thomas) and all cable stations (breakdown not available). All other segments are considered to be part of the inter-region network. All capacity data are derived from Segment B (U.S. to St. Thomas) minus Segment C1 (St. Thomas to Europe). This is done because the common segment of AMERICAS-1 and COLUMBUS-2 is used for both service to Europe and the Caribbean. This number is divided by two because COLUMBUS-2 backs up the AMERICAS-1 cable and thus only half of its design capacity is available at any given time. Length is of entire COLUMBUS-2 system.

[30],[31],[32],[33],[34],[37],[38],[39] See [10],[11],[12],[13],[14],[17],[18],[19] respectively.

[41],[42] Key West-Havana and BER-1 have no segment data available for cost or capacity. Length is measured in miles and is of entire system.

[43] Florida-Jamaica cost is of entire system. The Panama landing point is in Fort Sherman which is considered to be the U.S. The capacity and length are of the segment from the U.S. to Jamaica. Length is in miles. Retirement Year based on AT&T Circuit Reports.

[44] Florida-St. Thomas No. 1 has no segment data available for cost or capacity. Length is measured in miles and is of entire system. Retirement Year is based on AT&T Circuit Reports.

[45] Florida-St. Thomas No. 2 has no segment data available for cost or capacity. The design capacity is set to equal the notional capacity since given design capacity is lower than given notional capacity. Length is measured in miles and is of the entire system. Retirement Year based on AT&T Circuit Reports.

[46] AT&T has active circuits on the CANBER cable (see AT&T Circuit Reports). No segment data are available for cost or capacity. Length is measured in miles and is of entire system. Retirement Year based on AT&T Circuit Reports.

[47] Florida-Bahamas has no segment data available for cost. All capacity data and length are of the U.S. to Bahamas segment. Length is measured in miles.

[48] Florida-St. Thomas No. 3 has no segment data available for cost or capacity. Length is measured in miles and is of entire system.

[49] U.S.-Cuba No. 7 has no segment data available for cost or capacity. Length is measured in miles and is of entire system. U.S.-Cuba No. 7 replaces the Key West-Havana cable.

Exhibit HSH – 10.4

U.S. Domestic Satellites Already Authorized for Private Line and Video and Audio Services to the Caribbean

DOMSAT	Capacity	Launch Date
COMSTAR D–4	6,600	Feb–81
CONTEL ASC–I	9,900	Aug–85
CONTEL ASC–II	9,900	Apr–91
GALAXY I	6,600	Jun–83
GALAXY II	6,600	Sep–83
GALAXY III	6,600	Sep–84
GALAXY IV–R	15,400	Dec–92
GALAXY V–R	15,400	Mar–92
GALAXY VI	6,600	Oct–90
GSTAR I	8,800	Apr–85
GSTAR II	8,800	Mar–86
GSTAR IV	8,800	Sep–88
SATCOM IR	6,600	Apr–83
SATCOM IIR	6,600	Sep–83
SATCOM IV	6,600	Jan–82
SATCOM K–1	8,800	Jan–86
SATCOM K–2	8,800	Nov–85
SBS II	3,285	Sep–81
SBS III	3,285	Nov–82
SBS IV	3,285	Aug–84
SBS V	6,646	Sep–88
SBS VI	6,241	Oct–90
SPACENET I	13,933	May–93
SPACENET II	13,933	Sep–93
SPACENET III	9,900	Mar–88
TELSTAR 301	6,600	Jul–83
TELSTAR 302	6,600	Sep–84
TELSTAR 303	6,600	Jun–85
WESTAR IV	6,600	Feb–82
WESTAR V	6,600	Jun–82
TOTAL CAPACITY	**240,908**	

Capacity is in 64 kbps–equivalents circuits.
Sources: FCC Public Notice, Report No. IS–0040, November 15, 1993; Attachments 1 and 2.
COMSAT

EXHIBIT HSH-11

NTIA LIST OF TRANS-OCEANIC CABLE SYSTEMS