In the following sections, the detailed performance requirements of the above services and their system parameters are listed. A detailed link budget for each service is presented in sections E.2 through E.5.

# 2. <u>Digital Television</u>

# a. <u>Signal Characteristics</u>

- Wideband QPSK Modulation
- Single carrier per transponder
- 20x10<sup>6</sup> QPSK symbols per second
- 24 MHz bandwidth
- Transponder operation at saturation
- Two information rates corresponding to two different code rates
  - 30 Mbps utilizing 7/8 Reed-Solomon, 7/8 convolutional codes as outer/inner code pair
  - 22.8 Mbps utilizing 7/8 Reed-Solomon, 2/3 convolutional codes as outer/inner code pair

# • Threshold Eb/N<sub>o</sub>

- 7.6 dB for 30 Mbps at 10<sup>-6</sup> Pbe
- 5.2 dB for 22.8 Mbps at 10<sup>-6</sup> Pbe
- Spectral control: >99% of all information bytes bit-by- bit encrypted pseudo-randomly. Resultant stream Reed-Solomon and the convolutional encoded.

# b. Link Budget

# (i) <u>Digital Television (30 Mbps)</u>

Time-division multiplexed digital TV will be transmitted through the satellite system at rates up to 30 Mbps. System parameters and performance for the 30 Mbps service are as follows:

Data rate:

30 Mbps

Modulation:

OPSK

Coding:

Concatenated RS and convolutional

Rate:

0.75

Decoding:

soft decision

Eb/No for BER=1x10e-6:

 $7.6 \, \mathrm{dB}$ 

Satellite Saturation

Flux Density

 $-95 \text{ dBW/m}^2$ 

Transmit earth station

diameter:

6.1m

Receive earth station

diameter:

1.0m

Receive location:

San Paulo, Brazil

Link availability:

99.5%

# (ii) <u>Digital Television (22.8 Mbps)</u>

The system parameters for the transmission of a 22.8 Mbps digital TV signal

# will be as follows:

Data rate:

22.8 Mbps

Modulation:

**QPSK** 

Coding:

Concatenated RS and convolutional

Rate:

0.57

Decoding:

soft decision

Eb/No for BER=1x10e-6:

5.2 dB

Satellite Saturation

Flux Density

-95 dBW/m<sup>2</sup>

Transmit earth station

diameter:

6.1m

Receive earth station

diameter:

1.0m

Receive location:

San Paulo, Brazil

Link availability:

99.5%

TABLE E-1
Digital Television Link Budget

	LINK PERFORMANCE	CI Sky	Up Fade	Dn Fade	Unit
-					
	Transmit EIRP	66.8	72.2		dBW
	Uplink Path Losses	-207.0	-207.0	-207.0	
UPLINK	Tx Pointing Losses	-0.1	-0.1	-0.1	
BUDGET	Uplink Rain Loss	0.0	-5.4	0.0	
,	Satellite G/T	2.0	2.0	2.0	dB/K
	Bandwidth	-73.8	-73.8	-73.8	dB-Hz
	C/N Uplink	16.5	16.5	16.5	dB
	Satellite EIRP	50.6			dBW
	Dnlink Path Losses	-205.7			
	Dnlink Rain Losses	0.0	0.0	-1.6	
DOWNLINK	Rx Pointing Losses	-0.3	-0.3	-0.3	dB
BUDGET	Cl-Sky E/S G/T	18.7	18.7	18.7	
	Degradation in G/T	0.0	0.0	-2.1	dB/K
	Bandwidth	-73.8	-73.8	-73.8	dB-Hz
	C/N Downlink	18.1	18.1	14.4	dB
	C/N Uplink	16.5	16.5	16.5	dB
	C/N Downlink	18.1	18.1	14.4	dB ,
	C/I Xpol	16.3	16.1	16.2	
	C/I Adjacent Satellite	20.5	20.5	20.5	dB
COMPOSITE	Total C/(N+I)	11.5	11.5	10.4	dB
LIINIX	Total Eb/No (30 Mbps)	10.6	10.6	9.5	dB
	Req'd Eb/No (30 Mbps)	7.6	7.6	7.6	dB
	Total Eb/No (22.8 Mbps)	11.8	11.8	10.7	dB
	Req'd Eb/No (22.8 Mbps)	5.2	1		l .
					<u> </u>

# 3. Analog Television

# a. <u>Signal Characteristics</u>

- Frequency Modulation
- Single carrier per transponder
- 24 MHz bandwidth
- Peak frequency deviation 10.2 MHz includes 600 kHz peak to peak energy dispersal
- Threshold C/N<sub>o</sub> 83 dB-Hz for a minimum weighted signal-to-noise ratio of 45 dB

•	Peak deviation of audio subcarrier on main carrier	1.25 MHz
•	Peak deviation of audio on subcarrier	75 kHz
•	Video top baseband frequency	4.2 MHz
•	Audio top baseband frequency	15 kHz
•	Subcarrier frequency	5.8 MHz
•	Video pre-emphasis and weighting factors	13.8 dB
•	Bandwidth of audio subcarrier	700 kHz

# b. Link Budget

Signal bandwidth	24 MHz
Satellite saturation flux density	$-95 \text{ dBW/m}^2$
Transmit earth station diameter	6.1 meter
Receive earth station diameter	1.8 meter
Receive location	Sao Paulo, Brazil
Link availability	99.5%

TABLE E-2 Analog Television Link Budget

	LINK PERFORMANCE	CI Sky	Up Fade	Dn Fade	Unit
_					
	Transmit EIRP	66.8	72.2	66.8	dBW
	Uplink Path Losses	-207.0	-207.0	-207.0	dB
UPLINK	Tx Pointing Losses	-0.1	-0.1	-0.1	dB
BUDGET	Uplink Rain Loss	0.0	-5.4	0.0	dB
	Satellite G/T	2.0	2.0	2.0	dB/K
	Bandwidth	-73.8	-73.8	-73.8	dB-Hz
	C/N Uplink	16.5	16.5	16.5	dB
	Satellite EIRP	50.6	50.6	50.6	dBW
	Dnlink Path Losses	-205.7	-205.7	-205.7	dB
	Dnlink Rain Losses	0.0	0.0	-1.6	dB
DOWNLINK	Rx Pointing Losses	-0.3	-0.3	-0.3	dB
BUDGET	CI Sky E/S G/T	24.5	24.5	24.5	dB/K
	Degradation in G/T	0.0	0.0	-2.1	dB/K
	Bandwidth	-73.8	-73.8	-73.8	dB-Hz
	C/N Downlink	20.9	20.9	20.2	dB
	C/N Uplink	16.5	16.5	16.5	
: 1	C/N Downlink	20.9	20.9	20.2	
	C/I Xpol	16.3	16.1	16.2	
001100077	C/I Adjacent Satellite	24.3	24.3	24.3	dB
COMPOSITE LINK	Total C/(N+I)	12.4	12.3	12.2	dB
	Video M.I.F.	20.7	20.7	20.7	dB
l	Pre-emph + wght.	13.8	13.8	13.8	
	Total S/(N+I)	46.9	46.8	46.3	dB

# 4. <u>Digital SCPC with T1 Rate</u>

# a. <u>Signal Characteristics</u>

Number of carriers (no interference) 18

Number of carriers (with interference) 14

Data rate 1.544 Mbps

Channel bandwidth 1.17 MHz

Modulation QPSK

Minimum offset from interfering carrier 3.5 MHz

Coding Convolutional

Rate 3/4

Decoding Sequential

Eb/No for BER =  $1 \times 10^{-6}$  6.0 dB

# b. <u>Link Budget</u>

Satellite saturation flux density -95 dBW/m<sup>2</sup>

Input backoff 6.1 dB

Output backoff 2.8 dB

Transmit Earth Station Diameter 6.1 meter

Receive Earth Station Diameter 1.2 meter

Receive location Sao Paulo,

Brazil

Link Availability 99.5%

# TABLE E-3 Digital T-1 Data Link Budget

	LINK PERFORMANCE	CI Sky	Up Fade	Dn Fade	Unit
	Transmit EIRP	48.1	53.5	48.1	dBW
	Uplink Path Losses	-207.0	-207.0	-207.0	dB
UPLINK	Tx Pointing Losses	-0.1	-0.1	-0.1	dB
BUDGET	Uplink Rain Loss	0.0	-5.4	0.0	dB
	Satellite G/T	2.0	2.0	2.0	dB/K
	Bandwidth	-60.7	-60.7	-60.7	dB-Hz
	C/N Uplink	10.9	10.9	10.9	4B
	O/14 Opinik	10.5	10.3	10.3	ub .
	Satellite EIRP	50.6	50.6	50.6	dBW
	Numer of Carriers	-12.6			
	Output Backoff	-2.8			
	Dnlink Path Losses	-205.7	-205.7	-205.7	dB
DOWNLINK	Dnlink Rain Losses	0.0	0.0	-1.6	dB
BUDGET	Rx Pointing Losses	-0.6	-0.6	-0.6	dB
	CI Sky E/S G/T	20.7	20.7	20.7	dB/K
	Degradation in G/T	0.0	0.0	-2.1	dB/K
	Bandwidth	-60.7	-60.7	-60.7	dB-Hz
	C/N Downlink	17.5	17.5	13.8	dB
	C/N Uplink	10.9	1	10.9	
	C/N Downlink	17.5		13.8	
	C/I Xpol	16.3		16.2	
	C/I Adjacent Satellite	24.9	24.9	24.9	
	C/IM Satellite	12.4		12.4	
COMPOSITE	C/IM Ground	33.0	33.0	33.0	dB
COMPOSITE LINK	Total C//NLI)	7.4	7.0	6.0	٩D
LINK	Total C/(N+I)	7.4	7.3	6.8	dB
	Total Eb/No	6.3	6.3	6.0	dB
	Req'd Eb/No	6.0	6.0	6.0	
				•	

# 5. <u>Digital SCPC</u> with 64 KBPS Rate

# a. Signal Characteristics

Number of carriers 400

(inbound, no interference)

Number of carriers 136

(outbound, no interference)

Data rate 64 kbps

Channel bandwidth 48.6 KHz

Modulation QPSK

Minimum offset from interfering carrier 3.5 MHz

Coding Convolutional

Rate 3/4

Decoding Sequential

Eb/No for BER =  $1 \times 10^{-6}$  6.0 dB

# b. Link Budget

# (i) Outbound Data Service

Satellite saturation flux density -95 dBW/m<sup>2</sup>

Input backoff 6.4 dB

Output backoff 3.0 dB

Transmit earth station diameter 6.1 meters

Transmit location Los Angeles, USA

Receive earth station diameter 1.2 meters

Receive location Sao Paulo, Brazil

Link Availability 99.5%

# (ii) <u>Inbound Data Service</u>

Satellite saturation flux

density  $-95 \text{ dBW/m}^2$ 

Input backoff 6.4 dB

Output backoff 3.0 dB

Transmit earth station diameter 1.2 meters

Transmit location Sao Paulo, Brazil

Receive earth station diameter 6.1 meters

Receive location Los Angeles, USA

Link availability 99.5%

# TABLE E-4 Outbound Digital Link Budget

	LINK PERFORMANCE	CI Sky	Up Fade	Dn Fade	Unit
		Or Only	Oprade	Dirage	Onn
- '	Transmit EIRP	39.2	44.6	39.2	dBW
	Uplink Path Losses	-207.0			1
UPLINK	Tx Pointing Losses	-0.1	l	-0.1	i .
BUDGET	Uplink Rain Loss	0.0	·	0.0	1
	Satellite G/T	2.0		2.0	
	Bandwidth	-46.9		-46.9	1
		+0.5	-40.5	-40.9	ub-nz
	C/N Uplink	15.8	15.8	15.8	dB
	Satellite EIRP	50.6	50.6	50.6	dBW
	Numer of Carriers	-26.0	-26.0	-26.0	dB
	Output Backoff	-3.0	-3.0	-3.0	dB
	Carrier Suppression	0.0	-0.5	0.0	dB
	Dnlink Path Losses	-205.7	-205.7	-205.7	dB
DOWNLINK	Dnlink Rain Losses	0.0	0.0	-1.6	dB
BUDGET	Rx Pointing Losses	-0.4	-0.4	-0.4	dB
	CI Sky E/S G/T	20.7	20.7	20.7	dB/K
	Degradation in G/T	0.0	0.0	-2.1	dB/K
	Bandwidth	-46.9	-46.9	-46.9	dB-Hz
!	C/N Downlink	17.9	17.4	140	40
	C/14 DOWITHIN	17.9	17.4	14.2	dB
	C/N Uplink	15.8	15.8	15.8	dB
	C/N Downlink	17.9	17.4	14.2	
	C/I Xpol	22.3	22.0	20.5	
	C/I Adjacent Satellite	27.0	25.1	27.0	i
	C/IM Satellite	20.9	18.9	20.9	dB
	C/IM Ground	33.0	33.0	33.0	1
COMPOSITE					
LINK	Total C/(N+I)	12.3	11.7	10.8	dB
	T				
	Total Eb/No	11.1	10.5	9.6	1
	Req'd Eb/No	6.0	6.0	6.0	dB

# Exhibit J

# Financial Statements

of

Hughes Electronics Corporation

The following consolidated financial statements of Hughes Electronics Corporation and subsidiaries were prepared by management which is responsible for their integrity and objectivity. The statements have been prepared in conformity with generally accepted accounting principles and, as such, include amounts based on judgments of management.

Management is further responsible for maintaining a system of internal accounting controls, designed to provide reasonable assurance that the books and records reflect the transactions of the companies and that its established policies and procedures are carefully followed. Perhaps the most important feature in the system of control is that it is continually reviewed for its effectiveness and is augmented by written policies and quidelines, the careful selection and training of qualified personnel, and a strong program of internal audit.

Deloitte & Touche LLP, an independent auditing firm, is engaged to audit the consolidated financial statements of Hughes Electronics Corporation and subsidiaries and issue reports thereon. The audit is conducted in accordance with generally accepted auditing standards which comprehend the consideration of internal accounting controls and tests of transactions to the extent necessary to form an independent opinion on the financial statements prepared by management. The Independent Auditors' Report appears below.

The Board of Directors, through its Audit Committee, is responsible for assuring that management fulfills its responsibilities in the preparation of the consolidated financial statements and engaging the independent auditors. The Committee reviews the scope of the audits and the accounting principles being applied in financial reporting. The independent auditors, representatives of management, and the internal auditors meet regularly (separately and jointly) with the Committee to review the activities of each, to ensure that each is properly discharging its responsibilities, and to assess the effectiveness of the system of internal accounting controls. It is management's conclusion that the system of internal accounting controls at December 31, 1995 provides reasonable assurance that the books and records reflect the transactions of the companies and that its established policies and procedures are complied with. To ensure complete independence, Deloitte & Touche LLP has full and free access to meet with the Committee, without management representatives present, to discuss the results of the audit, the adequacy of internal accounting controls, and the quality of the financial reporting.

mile Ch Chairman of the Board and Chief Executive Officer

Charles Thank Senior Vice President and Chief Financial Officer Towanne f. aust Vice President and Controller

# INDEPENDENT AUDITORS' REPORT

**Deloitte &** Touche LLP

To The Stockholder and Board of Directors of Hughes Electronics Corporation:

We have audited the Consolidated Balance Sheet of Hughes Electronics Corporation and subsidiaries as of December 31, 1995 and 1994 and the related Consolidated Statement of Income and Available Separate Consolidated Net Income and Consolidated Statement of Cash Flows for each of the three years in the period ended December 31, 1995. These financial statements are the responsibility of Hughes Electronics Corporation's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the financial position of Hughes Electronics Corporation and subsidiaries at December 31, 1995 and 1994 and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1995 in conformity with generally accepted accounting principles.

As discussed in Note 1 to the consolidated financial statements, effective January 1, 1994 Hughes Electronics Corporation changed its method of accounting for postemployment benefits.

Deloitte & Touche LLP

Los Angeles, California January 29, 1996

	Years Ended December 31,		
•	1995	1994	1993
Revenues			
Net sales			
Outside customers	\$ 9,528.8	\$ 9,108.7	\$ 9,062.8
General Motors and affiliates (Note 2)	5,185.5	4,953.6	4,387.4
Other income - net	57.5	37.1	67.3
Total Revenues	14,771.8	14,099.4	13,517.5
Costs and Expenses			
Cost of sales and other operating charges,			
exclusive of items listed below (Note 2)	11,325.1	10,943.4	10,557.5
Selling, general, and administrative expenses	1,234.2	1,018.3	929.1
Depreciation and amortization	487.7	470.2	503.5
Amortization of GM purchase accounting adjustments			
related to Hughes Aircraft Company (Note 1)	123.4	. 123.8	123.8
Interest expense - net	7.5	15.1	33.2
Total Costs and Expenses	13,177.9	12,570.8	12,147.1
Income before Income Taxes	1,593.9	1,528.6	1,370.4
Income taxes (Note 6)	645.6	572.8	572.6
Income before cumulative effect of accounting change	948.3	955.8	797.8
Cumulative effect of accounting change (Note 1)	-	(30.4)	
Net Income	948.3	925.4	797.8
Adjustments to exclude the effect of GM purchase			
accounting adjustments related to Hughes Aircraft Company (Notes 1 and 7)	159.5	123.8	123.8
Earnings Used for Computation of Available			
Separate Consolidated Net Income	\$ 1,107.8	\$ 1,049.2	\$ 921.6
Available Separate Consolidated Net Income (Note 7)			
Average number of shares of General Motors Class H			
Common Stock outstanding (in millions) (Numerator)	95.5	92.1	88.6
Class H dividend base (in millions) (Denominator)	399.9	399.9	399.9
Available Separate Consolidated Net Income	\$ 264.6	\$ 241.6	\$ 204.5
Earnings Attributable to General Motors Class H			
Common Stock on a Per Share Basis (Note 7)	•		
Before cumulative effect of accounting change	\$2.77	\$2.70	\$2.30
Cumulative effect of accounting change (Note 1)		(0.08)	
Net earnings attributable to General Motors			
Class H Common Stock	\$2.77	\$2.62	\$2.30

Reference should be made to the Notes to Consolidated Financial Statements.

Access	December 31,		
ASSETS Current Assets	1995	199	
		-	
Cash and cash equivalents (Note 1)	\$ 1,139.5	\$ 1,501	
Accounts and notes receivable			
Trade receivables (less allowances)	1,235.6	. 1,039	
General Motors and affiliates (Note 2)	146.7	153	
Contracts in process, less advances and progress			
payments of \$1,327.2 and \$2,311.2	2,469.2	2,265	
Inventories (less allowances) (Note 1)	1,225.5	1,087	
Prepaid expenses, including deferred income taxes of \$484.4 and \$89.0	594.3	195	
Total Current Assets	6,810.8	6,243	
Property - Net (Notes 8 and 9)	2,739.2	2,611.	
Telecommunications and Other Equipment, net of accumulated		2,011	
depreciation of \$274.5 and \$198.0	1,175.1	1,071.	
Intangible Assets, net of amortization			
of \$1,415.1 and \$1,276.7 (Note 1)	3,573.7	3,271.	
Investments and Other Assets, including deferred income taxes of \$47.3		0,271.	
and \$214.0 - principally at cost (less allowances)	1,675.6	1,652.	
Total Assets	\$ 15,974.4	\$ 14,850.	
Accounts payable			
Outside	\$ 748.7	\$ 779.	
General Motors and affiliates (Note 2)	52.2	80.	
Advances on contracts	893.7	645.	
Notes and loans payable (Note 9)	432.5	125.	
ncome taxes payable (Note 6)	190.8	31.4	
Accrued liabilities (Note 10)	1,990.9	1,885.	
otal Current Liabilities	4,308.8	3,548.	
ong-Term Debt and Capitalized Leases (Note 9)	258.8	353.5	
Postretirement Benefits Other Than Pensions (Note 5)	1,610.6	1,541.4	
	1,270.5	1,431.7	
Other Liabilities and Deferred Credits		1,701.1	
Other Liabilities and Deferred Credits  Stockholder's Equity (Note 11)			
Stockholder's Equity (Note 11)			
tockholder's Equity (Note 11)	6 338 1	6 206 F	
Stockholder's Equity (Note 11) Capital stock (outstanding, 1,000 shares, \$0.10 par value) and additional paid-in capital	6,338.1 2,323.9		
Stockholder's Equity (Note 11) Sapital stock (outstanding, 1,000 shares, \$0.10 par value) and additional paid-in capital let income retained for use in the business	2,323.9	1,743.6	
Stockholder's Equity (Note 11) Sapital stock (outstanding, 1,000 shares, \$0.10 par value) and additional paid-in capital let income retained for use in the business ubtotal	2,323.9 8,662.0	1,743.6 8,070.1	
Stockholder's Equity (Note 11) Sapital stock (outstanding, 1,000 shares, \$0.10 par value) and additional paid-in capital let income retained for use in the business ubtotal linimum pension liability adjustment	2,323.9 8,662.0 (108.6)	1,743.6 8,070.1 (76.1	
Stockholder's Equity (Note 11) Capital stock (outstanding, 1,000 shares, \$0.10 par value)	2,323.9 8,662.0	6,326.5 1,743.6 8,070.1 (76.1 (18.2 7,975.8	

· · · · · · · · · · · · · · · · · · ·	Years Ended December 31,		
·	1995	1994	1993
Cash Flows from Operating Activities			
Income before cumulative effect of accounting change	\$ 948.3	\$ 955.8	\$ 797.8
Adjustments to reconcile income before cumulative effect of			
accounting change to net cash provided by operating activities			•
Depreciation and amortization	487.7	470.2	503.5
Amortization and adjustment of GM purchase accounting			
adjustments related to Hughes Aircraft Company	159.5	123.8	123.8
Pension expense (credit), net of cash contributions	(51.9)	20.3	(25.6)
Provision for postretirement benefits other than			
pensions, net of cash payments	43.5	78.4	91.0
Net loss on sale of property	6.1	14.3	36.1
Net gain on sale of investments and businesses	(12.9)	(3.6)	(50.3)
Change in deferred income taxes and other*	(150.1)	(60.1)	207.1
Change in other operating assets and liabilities	,		•
Accounts receivable	(147.3)	(238.1)	(153.7)
Contracts in process	(186.2)	111.4	70.9
Inventories	(160.1)	(27.5)	104.6
Prepaid expenses	(3.0)	(15.2)	3.4
Accounts payable	(92.0)	25.8	81.5
Income taxes	160.4	(70.7)	30.1
Accrued and other liabilities	257.0	(28.2)	(143.5)
Other*	(272.8)	20.2	(183.2)
Net Cash Provided by Operating Activities	986.2	1,376.8	1,493.5
Cash Flows from Investing Activities			
Investment in companies, net of cash acquired	(309.5)	(7.0)	(149.3)
Expenditures for property and special tools	(545.7)	(490.5)	(448.9)
Increase in telecommunications and other equipment	(198.9)	(351.9)	(230.3)
Proceeds from disposal of property	50.6	90.6	115.0
Proceeds from sale of investments and businesses	127.2	3.6	281.6
(Increase) decrease in notes receivable	(13.6)	206.9	7.6
Net Cash Used in Investing Activities	(889.9)	(548.3)	(424.3)
Cash Flows from Financing Activities			
Net decrease in notes and loans payable	(80.9)	(2.1)	(189.4)
Increase in long-term debt	28.0	7.5	84.0
Decrease in long-term debt	(37.7)	(20.8)	(369.8)
Cash dividends paid to General Motors	(368.0)	(320.0)	(288.0)
Net Cash Used in Financing Activities	(458.6)	(335.4)	(763.2)
Net (decrease) increase in cash and cash equivalents	(362.3)	493.1	306.0
Cash and cash equivalents at beginning of the year	1,501.8	1,008.7	702.7
Cash and cash equivalents at end of the year	\$1,139.5	\$ 1,501.8	\$1,008.7

\*1994 amounts exclude the effect of accounting change. Reference should be made to the Notes to Consolidated Financial Statements.

# NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

#### ORGANIZATION AND CONSOLIDATION

The consolidated financial statements include the accounts of Hughes Electronics Corporation (formerly GM Hughes Electronics Corporation) (Hughes) and its domestic and foreign subsidiaries that are more than 50% owned, principally Hughes Aircraft Company and Delco Electronics Corporation (Delco Electronics). Investments in associated companies in which at least 20% of the voting securities is owned are accounted for under the equity method of accounting.

Effective December 31, 1985, General Motors Corporation (General Motors or GM) acquired Hughes Aircraft Company and its subsidiaries for \$2.7 billion in cash and cash equivalents and 100 million shares of GM Class H common stock having an estimated value of \$2,561.9 million, which carried certain guarantees.

On February 28, 1989, GM and the Howard Hughes Medical Institute (Institute) reached an agreement to terminate GM's then-existing guarantee obligations with respect to the Institute's holding of GM Class H common stock. Under terms of the agreement as amended, the Institute received put options exercisable under most circumstances at \$30 per share on March 1, 1991, 1992, 1993, and 1995 for 20 million, 10 million, 10.5 million, and 15 million shares, respectively. The Institute exercised these put options at \$30 per share on March 1, 1991, March 2, 1992, and March 1, 1993. On February 15, 1995, GM and the Institute entered into an agreement under which GM assisted the Institute in selling 15 million shares of GM Class H common stock at \$38.50 per share. The March 1, 1995 put option expired unexercised.

The acquisition of Hughes Aircraft Company was accounted for as a purchase. The purchase price exceeded the net book value of Hughes Aircraft Company by \$4,244.7 million, which was assigned as follows: \$500.0 million to patents and related technology, \$125.0 million to the future economic benefits to GM of the Hughes Aircraft Company Long-Term Incentive Plan (LTIP), and \$3,619.7 million to other intangible assets, including goodwill. The amounts assigned to patents and related technology are being amortized on a straight-line basis over 15 years and other intangible assets, including goodwill, over 40 years. The amount assigned to the future economic benefits of the LTIP was fully amortized in 1990.

For the purpose of determining earnings per share and amounts available for dividends on the common stocks of General Motors, the amortization and disposal, if any, of these intangible assets is charged against earnings attributable to GM \$1% par value common stock and amounted to \$159.5 million, \$123.8 million, and \$123.8 million in 1995, 1994, and 1993, respectively. The 1995 amount included a \$36.1 million charge, included in other income, for the write-off of such purchase accounting adjustments related to the dis-

position of certain non-strategic business units.

The earnings of Hughes and its subsidiaries since the acquisition of Hughes Aircraft Company form the base from which any dividends on the GM Class H common stock are declared. These earnings include income earned from sales to GM and its affiliates, but exclude purchase accounting adjustments (see Notes 2 and 7).

# USE OF ESTIMATES IN THE PREPARATION OF THE FINANCIAL STATEMENTS

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect amounts reported therein. Due to the inherent uncertainty involved in making estimates, actual results reported in future periods may be based upon amounts which differ from those estimates.

# REVENUE RECOGNITION

Sales to General Motors and affiliates and to outside customers not pursuant to long-term contracts are generally recognized as products are shipped or services are rendered. Sales under long-term contracts are primarily recognized using the percentage-of-completion (cost-to-cost) method of accounting. Under this method, sales are recorded equivalent to costs incurred plus a portion of the profit expected to be realized, determined based on the ratio of costs incurred to estimated total costs at completion. Sales under certain commercial long-term contracts are recognized using the units-of-delivery method.

Profits expected to be realized on long-term contracts are based on estimates of total sales value and costs at completion. These estimates are reviewed and revised periodically throughout the lives of the contracts, and adjustments to profits resulting from such revisions are recorded in the accounting period in which the revisions are made. Estimated losses on contracts are recorded in the period in which they are identified.

Certain contracts contain cost or performance incentives which provide for increases in profits for surpassing stated objectives and decreases in profits for failure to achieve such objectives. Amounts associated with incentives are included in estimates of total sales values when there is sufficient information to relate actual performance to the objectives.

#### CASH FLOWS

Cash equivalents consist of highly liquid investments purchased with original maturities of 90 days or less.

Net cash provided by operating activities reflects cash payments for interest and income taxes as follows:

(Dollars in Millions)	1995	1994	1993
Interest	\$ 37.5	\$ 40.7	\$ 72.5
Income taxes	634.2	686.2	245.0

#### ACCOUNTS RECEIVABLE AND CONTRACTS IN PROCESS

Trade receivables are principally related to long-term contracts and programs. Amounts billed under retainage provisions of contracts are not significant, and substantially all amounts are collectible within one year.

Contracts in process are stated at costs incurred plus estimated profit, less amounts billed to customers and advances and progress payments applied. Engineering, tooling, manufacturing, and applicable overhead costs, including administrative, research and development, and selling expenses, are charged to costs and expenses when incurred. Contracts in process include amounts relating to contracts with long production cycles, and \$400.9 million of the 1995 amount is expected to be billed after one year. Contracts in process in 1995 also include approximately \$61.9 million relating to claims, requests for equitable adjustments, and amounts withheld pending negotiation or settlement with customers. Under certain contracts with the U.S. Government, progress payments are received based on costs incurred on the respective contracts. Title to the inventories related to such contracts (included in contracts in process) vests with the U.S. Government.

#### INVENTORIES

Inventories are stated at the lower of cost or market principally using the first-in, first-out (FIFO) or average cost methods.

Major Classes of Inventories

(Dollars in Millions)	1995	1994
Productive material, work in process,		
and supplies	\$1,060.4	\$ 968.0
Finished product	165.1	119.9
Total	\$1,225.5	\$1,087.9

#### PROPERTY AND DEPRECIATION

Property is carried at cost. Depreciation of property is provided for based on estimated useful lives (3 to 45 years) generally using accelerated methods.

#### TELECOMMUNICATIONS AND OTHER EQUIPMENT

Telecommunications and other equipment includes satellite transponders and other equipment subject to operating leases or service agreements. Such equipment is carried at Hughes' direct and indirect manufacturing cost and is amortized over the estimated useful

lives (7 to 23 years) using the straight-line method. The net book value of equipment subject to operating leases was \$299.8 million and \$452.9 million at December 31, 1995 and 1994, respectively.

#### INTANGIBLE ASSETS

Intangible assets, principally the excess of cost over the fair value of identifiable net assets of purchased businesses, are amortized using the straight-line method over periods not exceeding 40 years. Hughes periodically evaluates the recoverability of goodwill and other intangible assets by assessing whether the unamortized intangible asset can be recovered over its remaining life through undiscounted cash flows generated by underlying tangible assets.

#### INCOME TAXES

The provision for income taxes is based on reported income before income taxes. Deferred income tax assets and liabilities reflect the impact of temporary differences between the amounts of assets and liabilities recognized for financial reporting purposes and such amounts recognized for tax purposes, as measured by applying currently enacted tax laws. Provision has been made for U.S. Federal income taxes to be paid on that portion of the undistributed earnings of foreign subsidianes that has not been deemed permanently reinvested.

Hughes and its domestic subsidiaries join with General Motors in filing a consolidated U.S. Federal income tax return. The portion of the consolidated income tax liability recorded by Hughes is generally equivalent to the liability it would have incurred on a separate return basis.

#### RESEARCH AND DEVELOPMENT

Expenditures for research and development are charged to costs and expenses as incurred and amounted to \$761.7 million in 1995, \$699.3 million in 1994, and \$612.1 million in 1993.

#### FINANCIAL INSTRUMENTS

Hughes enters into foreign exchange-forward contracts to reduce its exposure to fluctuations in foreign exchange rates. Foreign exchange-forward contracts are accounted for as hedges to the extent they are designated as, and are effective as, hedges of firm foreign currency commitments.

#### FOREIGN CURRENCY TRANSACTIONS

Foreign currency transaction net gains (losses) included in consolidated operating results amounted to (\$0.5) million in 1995, (\$4.2) million in 1994, and \$2.4 million in 1993.

#### MARKET CONCENTRATIONS

Sales under United States Government contracts were 35.5%, 37.6%, and 44.2% of net sales in 1995, 1994, and 1993, respectively. Hughes has reduced its vulnerability to reductions in U.S.

defense spending by diversifying its customer base and product lines with an emphasis on international markets and non-defense government agencies.

Sales to General Motors and affiliates, consisting of various automotive electronic component parts, comprised approximately 35.2% of net sales in 1995 and 1994, and 32.6% in 1993.

#### **NEW ACCOUNTING STANDARDS**

In October 1995, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 123, Accounting for Stock-Based Compensation, effective for transactions entered into in fiscal years beginning after December 15, 1995. As permitted by SFAS No. 123, Hughes expects to continue to apply its current accounting policy under Accounting Principles Board Opinion No. 25, Accounting for Stock Issued to Employees, and include the necessary disclosures in its 1996 financial statements.

In March 1995, the FASB issued SFAS No. 121, Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of, which is required to be adopted for fiscal years beginning after December 15, 1995. This Statement establishes accounting standards for the impairment of long-lived assets, certain identifiable intangibles, and goodwill related to those assets to be held and used, and for long-lived assets and certain identifiable intangibles to be disposed of. The cumulative effect of this accounting change as of January 1, 1996 is not expected to be material.

### ACCOUNTING CHANGES

Effective January 1, 1994, Hughes adopted SFAS No. 112, Employers' Accounting for Postemployment Benefits. The Statement requires accrual of the costs of benefits provided to former or inactive employees after employment, but before retirement. The unfavorable cumulative effect of adopting this Standard was \$30.4 million, net of income taxes of \$19.2 million, or \$0.08 per share of GM Class H common stock. The charge primarily related to extended disability benefits which are accrued on a service-driven basis.

# NOTE 2: RELATED-PARTY TRANSACTIONS

# SALES, PURCHASES, AND ADMINISTRATIVE EXPENSES

The amounts due from and to GM and affiliates result from sales of products to and purchases of materials and services from units controlled by GM. Purchases from GM and affiliates, including computer systems services provided by Electronic Data Systems Corporation, a wholly-owned subsidiary of GM, and common administrative expenses allocated by GM, amounted to approximately \$233.7 million, \$257.1 million, and \$285.9 million in 1995, 1994, and 1993, respectively.

#### INCENTIVE PLANS

Certain eligible employees of Hughes participate in various incentive plans of GM and its subsidiaries.

#### NOTE 3: INCENTIVE PLAN

Under the Hughes Electronics Corporation Incentive Plan (the Plan), as approved by the GM Board of Directors in 1987, 1992, and 1995, shares, rights, or options to acquire up to 20 million shares of GM Class H common stock may be granted through May 31, 1997.

The GM Executive Compensation Committee may grant options and other rights to acquire shares of GM Class H common stock under the provisions of the Plan. The option price is equal to 100% of the fair market value of GM Class H common stock on the date the options are granted. These nonqualified options generally expire 10 years from the dates of grant and are subject to earlier termination under certain conditions.

Changes in the status of outstanding options were as follows:

		SHARES
GM CLASS H COMMON STOCK	OPTION PRICES	UNDER OPTION
Outstanding at		
January 1, 1993	\$17.07 - \$30.25	6,516,755
Granted	28.00 - 28.56	2,027,260
Exercised	17.07 - 30.25	(1,960,162)
Terminated	17.07 - 30.25	(217,845)
Outstanding at		
December 31, 1993	17.07 - 30.25	6,366,008
Granted	36.75	1,612,640
Exercised	17.07 - 30.25	(712,107)
Terminated	17.07 - 36.75	(202,220)
Outstanding at		
December 31, 1994	17.07 - 36.75	7,064,321
Granted	39.94	1,537,350
Exercised	17.07 - 36.75	(1,929,393)
Terminated	28.00 - 36.75	(14,425)
Outstanding at		
December 31, 1995	\$17.07 - \$39.94	6,657,853

Options for 4,422,618 shares of GM Class H common stock were exercisable at December 31, 1995, and the maximum number of shares for which additional options and other rights may be granted under the Plan was 3,905,786 shares.

#### NOTE 4: PENSION PROGRAMS

Hughes' total pension expense (credit) amounted to \$39.0 million in 1995, \$54.9 million in 1994, and (\$8.1) million in 1993.

Substantially all the employees of Delco Electronics participate in the defined benefit pension plans of General Motors. Plans covering represented employees generally provide benefits of negotiated stated amounts for each year of service as well as significant supplemental benefits for employees who retire with 30 years of service before normal retirement age. The benefits provided by the plans covering salaried employees are generally based on years of service and the employee's salary history. Certain nonqualified pension plans covering executives are based on targeted wage replacement percentages and are unfunded. The accumulated plan benefit obligation and plan net assets for the employees of Delco Electronics are not determined separately; however, GM charged Delco Electronics \$50.9 million, \$93.3 million, and \$69.8 million for benefits earned by these employees in 1995, 1994, and 1993, respectively.

Substantially all of Hughes' non-automotive employees are covered by Hughes' contributory and non-contributory defined benefit retirement plans. Benefits are based on years of service and compensation earned during a specified period of time before retirement.

Additionally, an unfunded, nonqualified pension plan covers certain executives. The net pension credit, related to these plans covering non-automotive employees, included the components shown below:

(Dollars in Millions)	1995	1994	1993
Benefits earned during the year	\$ 110.5	\$146.7	\$121.1
Interest accrued on benefits			
earned in prior years	403.6	377.0	369.1
Actual return on assets	(1,198.3)	(104.7)	(953.7)
Net amortization and deferral	672.3	(457.4)	385.6
Net pension credit	\$ (11.9)	\$ (38.4)	\$ (77.9)

Costs are actuarially determined using the projected unit credit method and are funded in accordance with U.S. Government cost accounting standards to the extent such costs are tax-deductible. SFAS No. 87, Employers' Accounting for Pensions, requires the recognition of an additional liability to increase the amounts recorded up to the unfunded accumulated benefit obligation. The adjustment required to recognize the minimum pension liability required by SFAS No. 87 is recorded as an intangible asset to the extent of unrecognized prior service cost and the remainder, net of applicable deferred income taxes, is recorded as a reduction of Stockholder's Equity. At December 31, 1995 and 1994, the additional minimum pension liability recorded was \$204.9 million and \$152.4 million, respectively, of which \$108.6 million and \$76.1 million, respectively, was recorded as a reduction of Stockholder's Equity.

Plan assets are invested primarily in listed common stock, cash and short-term investment funds, U.S. Government securities, and other investments.

# CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION SUBMITTED IN THIS APPLICATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this Application, that I am familiar with Part 25 of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted in this Application, and that it is complete and accurate to the best of my knowledge.

Benard Nunt Bernard F. Vecerek, Ph.D.

Director

Galaxy Satellite Services

Hughes Communications Galaxy, Inc.

Date: April-19-1996

open entry, competition, the development of new markets and services, and regulatory flexibility. Those policies will be fostered by a grant of this request.

Grant of this request will make available new satellite services to the international market, provide an additional source for existing international services, and supplement the Ku band capacity that is available at 91° W.L. for U.S. service. The extended Ku band payload on Galaxy XI(I) will provide existing users at 91° additional capacity that they can use without the need for an additional antenna or other costly upgrades. In addition, authorizing Hughes to provide international satellite services will foster competition in a market that now consists only of INTELSAT, Pan American Satellite, and, to a lesser extent, Columbia Communications Corporation.

Galaxy XI(I) will represent the state-of-the-art of satellite technology when it is launched. At 135 watts of power, this spacecraft will provide services that are not available today. As Hughes Space and Communications Company built satellites are inherently reliable and enjoy an extremely low failure rate, Galaxy XI(I) will likely be able to provide high quality service throughout its fuel life.

By expanding the ability to distribute U.S. satellite services, grant of this application will increase the potential sale of U.S. satellite reception equipment and program materials, encourage the development of new and innovative service offerings, allow additional markets to develop for U.S. programmers, and strengthen and encourage cooperation among nations in the provision of satellite services.

As set forth more fully above, grant of this request is fully consistent with Commission policy and with the United States' obligations under the INTELSAT Agreement.

Finally, Hughes is an experienced, successful, reliable and financially-sound operator of domestic communications satellites. Hughes's track record as an industry leader

is strong evidence that it is well situated to maximize the potential for success in international satellite services, and that it will carry out the Commission's policy of ensuring that satellite authorizations are used to provide service promptly and effectively. Prompt grant of this application will provide the public with the long-term assurance it needs that satellite providers will be able to provide state-of-the-art, reliable, satellite communication services, and to compete effectively with each other, into the 21st century.

All of these factors demonstrate that Hughes is legally, financially and technically qualified and that grant of this Application will serve the public interest, convenience, and necessity. For these reasons, Hughes respectfully requests that the Commission grant this Application.

# **CONCLUSION**

For the foregoing reasons, HCG respectfully requests that the Commission grant this Application.

Respectfully submitted,

HUGHES COMMUNICATIONS GALAXY, INC.

By:

Carl A. Brown

Senior-Vice President

Date:

4-18-96

# CERTIFICATION AND SIGNATURE

HCG waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests construction and launch and operating authority in accordance with this Application. All statements made in the attached exhibits are a material part hereof, and are incorporated herein as if set out in full in this Application.

The undersigned certifies individually and for HCG that the statements made in this Application are true, complete, and correct to the best of his knowledge an belief, and are made in good faith.

HUGHES COMMUNICATIONS GALAXY, INC.

By:

Carl A. Brown

Senior Vice President

Date

4/18/96

# 2. Miscellaneous and Alternatives

The satellite will be capable of orbital relocations during its lifetime, in order to accommodate possible new orbital assignments by the Commission. Propellant is provided for one orbital shift at one degree per day. Any such shifts, however, would cause severe disruptions in service. The ground network associated with the satellite is expected to consist of tens of thousands of terminals. These earth stations would have to be repointed in case of a change in orbital location. This would result in a significant cost and disruption of service to end users.

# ITEM H. Schedule

### 1. Contract Milestones

The dates by which the following matters are expected to be resolved are as follows:

- a. Spacecraft RFP issued -- no RFP will be used to procure construction of the spacecraft.
- b. Spacecraft contractor selected -- Hughes Space and Communications Company has already been selected as the contractor.
- c. Spacecraft contract executed -- appropriate authorizations executed within 12 months after grant of the construction permit.
- d. Launch service contract executed -- within eighteen months after grant of authorization.
- e. Financing completed -- as set forth in Item J, Hughes' ultimate parent, Hughes Electronics Corporation, has sufficient current assets and operating income to fund the construction, launch and first-year operating costs of the satellite applied for in this application.

# 2. Spacecraft Milestones

The dates by which the following goals are scheduled to be achieved are as follows:

- a. Construction of the spacecraft begins within 12 months of the grant of the construction permit.
- b. Construction of the spacecraft expected to be completed within 48 months after commencement of construction.
- c. Spacecraft launch within nine months following the completion of construction.
  - d. Spacecraft in service -- within sixty days after launch.

# ITEM I. System Costs

Table I-1 sets out in detail the estimated capital investment and annual operating costs for the satellite for a lifetime of 12 years. The total cost of the space and ground segments is projected to be \$230 million, which includes the construction cost of the spacecraft and the launch, launch vehicle service, launch insurance, associated ground equipment, and pre-operating expenses. The satellite costs are based on estimates from the manufacturer, Hughes Space and Communications Company, a unit of Hughes Electronics Corporation. The costs of the launch vehicle and other associated items are based on current industry practice. The ground segment costs are based on projected costs for modifications to Hughes' OCC in El Segundo, California and the Castle Rock and Spring Creek TT&C earth stations. Separate communication earth stations (end user terminals) are not part of this Application, and are not considered in the projected costs. Hughes expects that there will be no satellite incentive payment for a successful launch.

TABLE I-1: INVESTMENT AND OPERATING COSTS

Capital Expenditures (\$M)

Operating Expenses (\$M)

Spacecraft, Launch, Insurance Ground System	\$ 220M 10M	Year(s) Relative to Launch	Annual <u>Expenses</u>
•	\$ 230M	1	\$ 8M
•	Ψ 230141	2	\$ 7M
-		3	\$ 7M
		4	\$ 7M
		5	\$ 7M
		6	\$ 6M
		7	\$ 6M
		8	\$ 6M
		9	\$ 5M
		10	\$ 5M
		11	\$ 5M
		12	\$ 5M
		· · · · · · · · · · · · · · · · · · ·	φ 51/1

Operating costs include the costs associated with the OCC, TT&C, general and administrative costs, on-orbit insurance and marketing. Pre-operating expenses during the construction period are estimated to be \$5 million.

# ITEM J. Financial Qualifications

# 1. Source of Funds

Hughes is a wholly-owned subsidiary of Hughes Telecommunications and Space Company (HTS), a large aerospace and electronics manufacturing company. HTS, in turn, is a wholly-owned subsidiary of Hughes Electronics Corporation ("HE"). Exhibit J contains the consolidated 1995 financial statements of HE, which demonstrate that it has more than sufficient current assets and operating income to fund the costs of this system.

# 2. Revenues

Hughes will not finance any part of this satellite with revenues derived from current operations and has not estimated such revenues with the degree of precision that

might be attempted were such reliance to be placed on such estimates. Hughes' estimate of revenues from the operations of this system is set forth below.

TABLE J-1: REVENUE PROJECTIONS

Year(s)	Annual
Relative	Revenue
to Launch	<u>(\$M)</u>
1	20
1	30
2	42
3	54
4	72
5	. 72
6	. 72
7	72
8	72
9	72
10	72
11	72
12	72

Overall system revenue projections for the satellite demonstrate that the system will generate sufficient revenues to recover all the operating costs. These projections also reflect what is required to achieve a rate of return appropriate for the risk that Hughes faces, given the expected demand, market penetration and system capacity.

# ITEM K. Legal Qualifications

The legal qualifications of Hughes are demonstrated in its FCC Form 430 dated September 8, 1995, which is on file with the Commission.

# ITEM L. Type of Operations

Hughes proposes to sell and/or lease the capacity on the satellite on a non-common carrier basis based on specialized customer requirements. Hughes will also retain the flexibility to convey capacity to affiliated or non-affiliated entities for common

carrier or resale use. Thus, although common carrier services may be offered to the public using capacity on the satellite, they will not be offered by the applicant.

# ITEM M. Compliance With INTELSAT Article XIV Obligations

Hughes intends to use Galaxy XI(I) primarily to provide services that are not interconnected to the public switched network. However, Hughes wishes to retain the flexibility to provide interconnected services on Galaxy XI(I), up to the maximum number of circuits permitted by the Commission.

Hughes acknowledges that Galaxy XI(I) will need to be technically coordinated with INTELSAT. Concerning economic harm, current INTELSAT procedures assume that no harm will be caused to INTELSAT by any separate system carrying traffic that is not interconnected to the public switched network. With respect to switched traffic, the INTELSAT procedures now assume that no economic harm to INTELSAT will be caused by a system carrying not more than 8,000 bearer circuits per satellite.

In sum, Hughes presently plans that Galaxy XI(I) primarily will provide services that are not interconnected and that any international switched services will not, exceed Commission limits. The Commission consistently has recognized that systems that comply with these limits are fully consistent with the INTELSAT Article XIV(d) requirements. See, e.g., Alpha Lyracom, DA 94-192 (released March 8, 1994). Thus, the proposed services will fully comply with the current INTELSAT Article XIV(d) coordination procedures.

# ITEM N. Public Interest Considerations

Grant of this request will serve the public interest in several respects. The United States has a healthy and thriving satellite industry. FCC policies have encouraged

# ANTI DRUG ABUSE ACT CERTIFICATION

HCG certifies that neither HCG, nor its parent company, Hughes Communications, Inc. ("HCI"), nor any of the officers or directors of HCG or HCI, is subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti Drug Abuse Act of 1988, 21 U.S.C. § 853a.

HUGHES COMMUNICATIONS GALAXY, INC.

By:

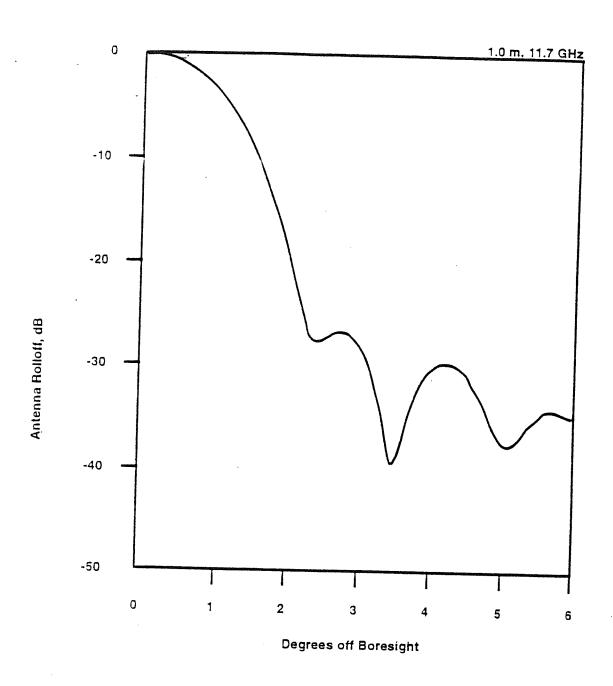
Carl A. Brown

Senior Vice President

Date

4/18/16

# FIGURE F-1 RECEIVE ANTENNA DISCRIMINATION



# TABLE E-5 Inbound Digital Link Budget

	LINK PERFORMANCE	Cl Sky	Up Fade	Dn Fade	Unit
-	Transmit EIRP	34.4	39.8	34.4	dBW
	Uplink Path Losses	-207.0	-207.0	-207.0	
UPLINK	Tx Pointing Losses	-0.5	-0.5	-0.5	dB
BUDGET	Uplink Rain Loss	0.0	-5.4	0.0	dB
	Satellite G/T	2.0		2.0	dB/K
	Bandwidth	-46.9	-46.9	-46.9	dB-Hz
	-				,
	C/N Uplink	10.6	10.6	10.6	dB
	Satellite EIRP	48.0	48.0	48.0	dBW
	Numer of Carriers	-26.0	-26.0	-26.0	dB
	Output Backoff	-3.0	-3.0	-3.0	dB
	Carrier Suppression	0.0	-0.5	0.0	dB
	Dnlink Path Losses	-205.7	-205.7	-205.7	dB
DOWNLINK	Dnlink Rain Losses	0.0	0.0	-0.1	dB
BUDGET	Rx Pointing Losses	-0.2	-0.2	-0.2	
	CI Sky E/S G/T	32.0	32.0		dB/K
	Degradation in G/T	0.0	0.0		dB/K
	Bandwidth	-46.9	-46.9	-46.9	dB-Hz
	C/N Downlink	26.8	26.3	26.5	dB
	C/N Uplink	10.6	10.6	10.6	
	C/N Downlink	26.8	26.3	26.5	
	C/I Xpol	22.3	22.0	20.5	
	C/I Adjacent Satellite	27.0	25.1	27.0	
	C/IM Satellite	20.9	18.9	20.9	
	C/IM Ground	33.0	33.0	33.0	dB
COMPOSITE		,			
LINK	Total C/(N+I)	9.8	9.5	9.6	dB
-	Total Ch/No	0.0	0.0		٩D
	Total Eb/No	8.6	8.3	8.6	
	Req'd Eb/No	6.0	6.0	6.0	dB

# ITEM F. Interference Analysis

# 1. <u>Internal Interference</u>

# a. <u>Cross-polarization Interference</u>

The satellite antenna cross-polarization isolation is 33 dB or better for both transmit and receive antennas over the coverage regions. The earth station cross-polarization isolation is assumed to be 35 dB for the transmit antennas larger than 1.2 meters, and 30 db for all others.

The link cross-polarization isolation between channels of opposite polarization is the power summation of the earth station and satellite antenna polarization isolations and the depolarization effects of rainfall, modified by the differential EIRP or incident flux density for the uplink and downlink, respectively. The depolarization due to rainfall is a function of frequency, rain attenuation, incident wave polarization, and elevation angle. The values used in the link budgets were calculated using the procedure of CCIR Report 722.

# b. Intermodulation Interference

The values used for C/IM have been derived from a combination of laboratory measurements and computer simulations for those traffic modes in which several carriers are transmitted through a transponder.

# 2. Adjacent Satellite Interference

Galaxy XI(I) has been designed to operate in a 2 degree orbital spacing environment. As set forth below, the operation of this satellite at 91° W.L. will be able to be coordinated with any similar satellite within 2°. Galaxy XI(I) will be co-located with Hughes' Galaxy VII(H) at 91° W.L. The standard Ku band payloads of both satellites will

be spatially separated: Galaxy VII(H) covers the contiguous U.S. and Galaxy XI(I) will cover South America.

# a. <u>Interference Into the Galaxy XI(I) System</u>

For uplink interference, a system with the relatively low sensitivity similar to that of Galaxy XI(I) is assumed. Specifically, we assume a 2.0 dB/°K G/T that results from 29.5 dBi edge-of-coverage antenna gain and an overall noise figure of 2.8 dB. Hughes assumes an adjacent satellite will utilize uplink power control to provide acceptable availability without causing undue interference under clear sky conditions. The resulting interference spectral flux densities for representative services, along with uplink signal and SNR requirements, are shown in Table F-1. The worst-case interference occurs with analog TV, shown in the right-hand column. An interference spectrum of -73 dBc/Hz is assumed, implying coordination between system operators, as the interference level will be considerably higher in the center 3.5 MHz of the band.

TABLE F-1
UPLINK INTERFERENCE SIGNAL MODELS

Service	Digital SCPC	Digital TV	Analog TV
Bandwidth (MHz)	2.0	24.0	24.0
Required Uplink SNR (dB)	10.0	22.5	30.0
Required Flux Density (dBW/m²)	-108.8	-85.5	-78.0
Uplink Antenna Diameter (m)	1.2	4.0	10.0
Sidelobe Protection (dB)	22.9	33.4	41.3
Adjacent System Flux Density (dBW/m²)	<u>-131.7</u>	<u>-118.9</u>	<u>-119.3</u>
Interference Spectral Flux Density(dBw/m²/Hz)	-194.7	-192.7	-192.3

The typical user terminal diameter has been selected for ease of installation and convenience. Figure F-1 illustrates the performance of a typical 1.0 meter antenna. As can be seen, this antenna provides about 25 dB of sidelobe isolation from adjacent satellites that would appear at least 2.2 degrees separated in topocentric angle. The resultant interference into Galaxy XI(I) is 20.5 dB.

# b. <u>Interference Into Other Satellite Systems</u>

Table F-2 contains uplink interference analysis into adjacent satellite systems caused by Galaxy XI(I). For uplink interference from Galaxy XI(I) into adjacent satellite systems, Hughes assumes the signal characteristics shown in the analog TV link budget. The flux density of such a transmission at Galaxy XI(I) is -95 dBW/m². When the 42.0 dB sidelobe protection for an uplink is factored in, the interference spectral density is -197 dBW/m²/Hz per carrier at the adjacent satellite. Based on the signal assumptions shown in Table F-1, the SNRs due to the Galaxy XI(I) uplink interference are 25 dB for SCPC digital, 37 dB for digital TV, and 45 dB for analog TV.

TABLE F-2: UPLINK INTERFERENCE INTO ADJACENT SYSTEM

Galaxy XI(I): Flux density Terminal uplink antenna discrimination Interference spectrum Worst case spectral flux density	-82.0 dBW/m <sup>2</sup> -42.0 dB -73.0 dBc Hz -197.0 dBW/Hz/m <sup>2</sup>
Adjacent System: Digital SCPC flux density bandwidth C/I due to Galaxy XI(I)	-108.8 dBW/m <sup>2</sup> 63.0 dB Hz 25.2 dB
Digital TV flux density Digital TV bandwidth C/I due to Galaxy XI(I)	-85.5 dBW/m <sup>2</sup> 73.8 dB Hz 37.7 dB
Analog TV flux density Analog TV bandwidth C/I due to Galaxy XI(I)	-78.0 dBW/m <sup>2</sup> 73.8 dB Hz 45.2 dB

Downlink interference from Galaxy XI(I) into adjacent systems, as shown in Table F-3, will be highest for applications that utilize very small aperture terminals. The television broadcasting examples shown in Table F-1 are typical of these most vulnerable applications. A typical system might utilize a 1.0 meter receive antenna. The receive

antenna would have about 25.0 dB of sidelobe protection at the worst-case low end of the 11.45 to 11.7 GHz band. In this frequency band, a satellite EIRP of at least 45 dBW would be needed to achieve reasonable availability for digital transmission. Assuming a satellite EIRP of 45 dBw and a transponder bandwidth of 24 MHz, the worst-case SNR due to interference from an adjacent satellite is 25.0 dB. Analog TV would require somewhat higher EIRP and would have a correspondingly better SNR due to Galaxy XI(I) interference.

TABLE F-3: DOWNLINK INTERFERENCE INTO ADJACENT SYSTEM

Galaxy XI(I) downlink EIRP	53.0 dBW (peak)
Galaxy XI(I) bandwidth	73.8 dB Hz
sidelobe protection	25.0 dB
adjacent system EIRP	53.0 dBW
adjacent system bandwidth	73.8 dB Hz
adjacent system power spectral density	-20.8 dBw/Hz
C/I due to Galaxy XI(I)	25.0 dB

### ITEM G. Preferred Location

Hughes requests that orbital location of 91° W.L. be assigned to Galaxy XI(I). This location satisfies Galaxy XI(I)'s requirements for optimizing coverage, elevation angles and service availability, and ensures that the maximum operational, economic and public interest benefits are derived from the system. Operating Galaxy XI(I) at 91° W.L. will afford Hughes and its customers certain operating efficiencies. Hughes already operates Galaxy VII(H) at that location and has a large existing customer base already installed. In the extended Ku band, Galaxy XI(I) will provide much needed additional Ku band capacity for these customers. The location of Galaxy XI(I) at 91° W.L. also will allow them to use existing earth station equipment to communicate with both Galaxy VII(H) and XI(I). In addition, the location of Galaxy XI(I) at 91° W.L. will provide Hughes the opportunity

eventually to locate a single hybrid satellite at that location that incorporates that capacity of both Galaxy VII(H) and Galaxy XI(I).

# 1. Orbital Arc Limitations and Service Capabilities

The requested 91° W.L. orbital location affords good elevation angles and minimization of rain outages over the coverage area. From this location, the spacecraft can provide service to and from CONUS, Alaska, Mexico, the Caribbean (including Puerto Rico and the U.S. Virgin Islands), and Central and South America. As noted above, because Galaxy VII(H) already serves CONUS at the standard Ku band, Galaxy XI(I) standard Ku band coverage will be restricted to South America to ensure adequate protection to Galaxy VII(H) users. The technical parameters of this service are set forth elsewhere in this Application. An orbital assignment at 91° W.L. will greatly enhance the coverage of the satellite to the desired service area. This location provides a minimum elevation angle at the west coast of CONUS of about 42° and a minimum elevation angle at the eastern most portion of South America of about 26°. High elevation angles over the coverage area are important to ensure link closure under heavy rain conditions and facilitate installation of ground terminals by providing an unobstructed line of sight to the satellite.

The ability of a satellite to overcome rain attenuation is significantly affected by its orbital location. This ability is particularly important at Ku band given the propagation characterizations of that band. Assigning the spacecraft at 91° W.L. will maximize its ability to overcome rain attenuation and reduce rain outages, because of the high elevation angles achievable there. This is particularly important with respect to services to the east coast of South America where rainfall intensity is the greatest.

The weighted average discount rates used in determining the actuarial present values of the projected benefit obligation shown in the table below were 7.25% and 8.75% at December 31, 1995 and 1994, respectively. The rate of increase in future compensation levels was 5.0% in 1995 and 1994. The expected long-term rate of return on assets used in determining pension cost was 9.5% for 1995 and 9.75% for 1994. The following table sets forth the funded status of the Hughes non-automotive employee plans and the amounts included in the Consolidated Balance Sheet at December 31, 1995 and 1994:

	1995		1994		
	Assets Exceed	Accumulated	Assets Exceed	Accumulated	
	Accumulated	Benefits	Accumulated	Benefits	
(Dollars in Millions)	Benefits	Exceed Assets	Benefits	Exceed Assets	
Actuarial present value of benefits based on					
service to date and present pay levels		•		•	
Vested	\$4,685.3	\$ 327.5	\$3,572.5	\$ 195.9	
Non-vested	225.6	4.7	337.9	0.9	
Accumulated benefit obligation	4,910.9	332.2	3,910,4	196.8	
Additional amounts related to projected pay increases	456.7	11.0	438.1	22.4	
Total projected benefit obligation based on					
service to date	5,367.6	343.2	4,348.5	219.2	
Plan assets at fair value	6,397.7	65.9	5,717.4		
Plan assets in excess of (less than) projected		-			
benefit obligation	1,030.1	(277.3)	1,368.9	(219.2)	
Unamortized net amount resulting from changes	·	(= 1113)	.,000.0	(213.2)	
in plan experience and actuarial assumptions	173.3	193.3	(152.4)	150.2	
Unamortized net asset at date of adoption	(161.9)	_	(217.3)	-	
Unamortized net amount resulting from changes	, ,		(217.0)		
in plan provisions	(13.8)	22.6	(14.2)	24.6	
Adjustment for unfunded pension liabilities	_	. (204.9)		(152.4)	
Net prepaid pension cost (accrued liability)	\$1,027.7	\$ (266.3)	\$ 985.0	\$(196.8)	

#### NOTE 5: OTHER POSTRETIREMENT BENEFITS

Substantially all of the employees of Delco Electronics participate in various postretirement medical, dental, vision, and life insurance plans of General Motors. Hughes maintains a program for eligible non-automotive retirees to participate in health care and life insurance benefits generally until they reach age 65. Qualified employees who elected to participate in the Hughes contributory defined benefit pension plans may become eligible for these benefits if they retire from Hughes between the ages of 55 and 65.

The total non-pension postretirement benefit cost of Hughes and its subsidiaries included the components set forth as follows:

(Dollars in Millions)	1995	1994	1993
Benefits earned during the year	\$ 33.9	\$ 50.1	\$ 49.2
Interest accrued on benefits earned in prior years	123.3	130.3	127.2
Net amortization	(16.5)	7.6	
Total non-pension postretirement benefit cost	\$140.7	\$ 188.0	\$176.4

The following table displays the components of Hughes' obligation recognized for postretirement benefit plans included in the Consolidated Balance Sheet at December 31, 1995 and 1994:

(Dollars in Millions)	1995	1994
Accumulated postretirement benefit obligation attributable to		
Current retirees	\$ 857.1	\$ 816.6
Fully eligible active plan participants	221.1	191.9
Other active plan participants	547.5	576.6
Accumulated postretirement benefit obligation	1,625.7	1,585.1
Unrecognized net amount resulting from changes in plan	•	
experience and actuarial assumptions	62.4	44.7
Net postretirement benefit obligation	1,688.1	1,629.8
Less current portion	77.5	88.4
Net long-term postretirement benefit obligation	\$1,610.6	\$1,541.4

The assumed weighted average discount rates used in determining the actuarial present value of the accumulated postretirement benefit obligation were 7.25% and 8.57% at December 31, 1995 and 1994, respectively. The assumed weighted average rate of increase in future compensation levels related to pay-related life insurance benefits was 4.4% at December 31, 1995 and 4.6% at December 31, 1994.

The assumed weighted average health care cost trend rate was 7.78% in 1995, increasing to 7.91% in 1996 and decreasing linearly each successive year until it reaches 5.18% in 2006, after which it remains constant. A one percentage point increase in each year of this annual trend rate would increase the accumulated postretirement benefit obligation at December 31, 1995 by approximately \$171 million, and increase the service and interest cost components of the 1995 postretirement benefit expense by approximately \$18 million.

Hughes has disclosed in the consolidated financial statements certain amounts associated with estimated future postretirement benefits other than pensions and characterized such amounts as "accumulated postretirement benefit obligations," "liabilities," or "obligations." Notwithstanding the recording of such amounts and the use of these terms, Hughes does not admit or otherwise acknowledge that such amounts or existing postretirement benefit plans of Hughes (other than pensions) represent legally enforceable liabilities of Hughes.

## NOTE 6: INCOME TAXES

The income tax provision consisted of the following:

(Dollars in Millions)	1995	1994	1993
Taxes currently payable			·
U.S. Federal	\$664.6	\$ 532.2	\$222.0
Foreign	13.4	10.3	10.7
U.S. state and local	138.4	100.5	94.3
Total	816.4	643.0	327.0
Deferred tax (assets) liabilities - net			
U.S. Federal	(130.0)	(62.2)	229.7
Foreign	2.0	1.3	
U.S. state and local	(42.8)	(9.3)	15.9
Total	(170.8)	(70.2)	245.6
Total income tax provision	\$645.6	\$ 572.8*	\$572.6

<sup>\*</sup> Excluding effect of accounting change.

The deferred income tax benefit in 1994 included a \$63.0 million credit that resulted from an adjustment to the beginning of the year valuation allowance because of a change in circumstances with respect to Hughes' ability to realize the benefit from a capital loss carryforward.

Income before income taxes included the following components:

(Dollars in Millions)	1995	1994	1993
U.S. income	\$1,494.7	\$1,448.1	\$1,286.7
Foreign income	99.2	80.5	83.7
Total	\$1,593.9	\$1,528.6	\$1,370.4

The consolidated income tax provision was different than the amount computed using the U.S. statutory income tax rate for the reasons set forth in the following table:

(Dollars in Millions)	1995	1994	1993
Expected tax at U.S. statutory income tax rate	\$557.9	\$535.0	\$479.5
U.S. state and local income taxes	62.2	59.3	70.1
Purchase accounting adjustments	55.8	43.3	43.3
Foreign sales corporation tax benefit	(22.2)	(19.2)	(11.2)
Change in valuation allowance	_	(63.0)	
Deferred tax impact of U.S. Federal income tax rate change	_	_	(10.0)
Other	(8.1)	17.4	0.9
Consolidated income tax provision	\$645.6	\$572.8°	\$572.6

Certain amounts for 1994 and 1993 have been reclassified to conform with the 1995 presentation.

<sup>\*</sup> Excluding effect of accounting change.

Temporary differences and carryforwards which gave rise to deferred tax assets and liabilities at December 31, 1995 and 1994 are as follows:

		1995		994
	Deferred	Deferred	Deferred	Deferred
	Tax	Tax	Tax	Tax
(Dollars in Millions)	Assets	Liabilities	Assets	Liabilities
Postretirement benefits other than pensions	\$ 704.9	\$ -	\$ 695.3	\$ -
Profits on long-term contracts	384.5	203.5	259.3	417.3
Leveraged leases	74.9	_	86.7	
Employee benefit programs	185.2	393.3	173.1	372.9
Depreciation	_	479.5		399.4
Special provision for restructuring	56.4		151.8	_
Other	445.2	220.3	356.3	215.6
Subtotal	1,851.1	1,296.6	1,722.5	1,405.2
Valuation allowance	(22.8)		(16.1)	<del>-</del>
Total deferred taxes	\$1,828.3	\$1,296.6	\$1,706.4	\$1,405.2

Certain amounts for 1994 have been reclassified to conform with the 1995 presentation.

Provision has been made for U.S. Federal income taxes to be paid on that portion of the undistributed earnings of foreign subsidiaries that has not been deemed permanently reinvested. At December 31, 1995 and 1994, undistributed earnings of foreign subsidiaries amounted to approximately \$397.4 million and \$311.4 million, respectively. Repatriation of all accumulated foreign earnings would have resulted in tax liabilities of \$110.3 million and \$90.3 million, respectively, for which Hughes has provided deferred tax liabilities of \$82.8 million and \$66.2 million, respectively.

At December 31, 1995, Hughes had \$34.9 million of foreign operating loss carryforwards which expire in varying amounts between 1996 and 2000. The valuation allowance includes a provision for all of the foreign operating loss carryforwards. In addition, Hughes had \$89.5 million of capital loss carryforwards, of which \$51.3 million will expire in 1998 and \$38.2 million will expire in 2000. No valuation allowance has been provided for the capital loss carryforwards.

# NOTE 7: EARNINGS ATTRIBUTABLE TO GENERAL MOTORS CLASS H COMMON STOCK ON A PER SHARE BASIS AND AVAILABLE SEPARATE CONSOLIDATED NET INCOME

Earnings attributable to General Motors Class H common stock on a per share basis have been determined based on the relative amounts available for the payment of dividends to holders of the GM Class H common stock. Holders of GM Class H common stock have no direct rights in the equity or assets of Hughes, but rather have rights in the equity and assets of GM (which includes 100% of the stock of Hughes).

Dividends on the GM Class H common stock are declared by GM's Board of Directors out of the Available Separate Consolidated Net Income of Hughes earned since the acquisition of Hughes Aircraft Company by GM. The Available Separate Consolidated Net Income of Hughes is determined quarterly and is equal to the separate consolidated net income of Hughes, excluding the effects of GM purchase accounting adjustments arising from the acquisition of Hughes Aircraft

Company (Earnings Used for Computation of Available Separate Consolidated Net Income), multiplied by a fraction, the numerator of which is a number equal to the weighted average number of shares of GM Class H common stock outstanding during the period and the denominator of which was 399.9 million during the fourth quarters of 1995, 1994, and 1993.

The denominator used in determining the Available Separate Consolidated Net Income of Hughes is adjusted as deemed appropriate by the GM Board of Directors to reflect subdivisions or combinations of the GM Class H common stock and to reflect certain transfers of capital to or from Hughes. The GM Board's discretion to make such adjustments is limited by criteria set forth in GM's Certificate of Incorporation. In this regard, the GM Board has generally caused the denominator to decrease as shares are purchased by Hughes, and to increase as such shares are used, at Hughes expense, for Hughes employee benefit plans or acquisitions.

Dividends may be paid on GM Class H common stock only when, as, and if declared by the GM Board of Directors in its sole discretion. The

current policy of the GM Board with respect to GM Class H common stock is to pay cash dividends approximately equal to 35% of the Available Separate Consolidated Net Income of Hughes for the prior year. Notwithstanding the current dividend policy, the dividends paid

on the GM Class H Common Stock during 1995, 1994, and 1993 were based on an annual rate higher than 35% of the Available Separate Consolidated Net Income of Hughes for the preceding year.

NOTE 8: PROPERTY - NET

(Dollars in Millions)	1995	1994
Land and improvements	\$ 189.7	\$ 196.5
Buildings and unamortized leasehold improvements	1,293.3	1,291.2
Machinery and equipment	2,874.2	2,623.8
Furniture, fixtures, and office machines	118.3	81.9
Construction in progress	439.9	448.9
Total	4,915.4	4,642.3
Less accumulated depreciation	2,244.2	2,047.5
Net real estate, plants, and equipment	2,671.2	2,594.8
Special tools - less amortization	68.0	17.0
Property - net	\$2,739.2	\$2,611.8

# NOTE 9: NOTES AND LOANS PAYABLE AND LONG-TERM DEBT AND CAPITALIZED LEASES

(Dollars in Millions)	1995	1994
Loans payable to banks	\$ 15.1	\$ 17.6
Current portion of long-term debt	7.2	55.4
Current portion of GM term loan	85.0	·
Other	325.2	52.7
Total notes and loans payable	\$ 432.5	\$ 125.7
Foreign bank debt	\$ 53.8	\$ 59.8
Term loans		
GM	143.8	143.8
Other	150.0	200.0
Other debt	2.9	3.9
Total	350.5	407.5
Less current portion	92.2	55.4
Long-term debt	258.3	352.1
Capitalized leases	0.5	1.4
Total long-term debt and capitalized leases	\$ 258.8	\$ 353.5

At December 31, 1995, Hughes had \$450.0 million and \$650.0 million of unused credit available under short-term lines of credit and an unsecured revolving credit loan agreement, respectively. The unsecured revolving credit loan agreement provides for a commitment of \$650.0 million through January 2000, subject to a facility fee of 0.10% per annum. Borrowings under the agreement bear interest at a rate which approximates the London Interbank Offered Rate plus 0.175%. No amounts were outstanding under the agreement or the short-term lines of credit at December 31, 1995.

At December 31, 1995, foreign bank debt included \$53.8 million denominated in British pounds sterling, bearing interest at rates ranging from 6.1% to 10.3%, with maturity dates from 1996 to 2005.

The GM term loans bear interest at rates ranging from 5.7% to 6.1%, with maturity dates in 1996 and 1997. The other term loans consisted of notes payable to an insurance company and other investors bearing interest at rates ranging from 7.7% to 8.0%, with maturity dates in 1997.

Other notes and loans payable included \$302.7 million related to the acquisition of Magnavox Electronic Systems Company (see Note 13). The note, which bore interest at a rate of 5.3%, was repaid in full on January 5, 1996.

Annual maturities of long-term debt and capitalized leases are \$92.2 million in 1996, \$213.5 million in 1997, \$3.9 million in 1998, \$4.2 million in 1999, \$4.6 million in 2000, and \$32.6 million thereafter.

Property with a net book value of \$34.6 million at December 31, 1995 was pledged as collateral under such debt.

#### NOTE 10: ACCRUED LIABILITIES

(Dollars in Millions)	1995	1994
Payrolls and other compensation	\$ 553.2	\$ 540.2
Provision for losses on contracts	408.4	277.0
Accrual for restructuring	115.9	143.3
Other	913.4	925.0
Total	\$1,990.9	\$1,885.5

## NOTE 11: STOCKHOLDER'S EQUITY

The authorized capital stock of Hughes consists of 1,000 shares of \$0.10 par value common stock. At December 31, 1995, 1994, and 1993, 1,000 shares having an aggregate par value of \$100 were issued and outstanding. All of the outstanding capital stock of Hughes is held by General Motors.

(Dollars in Millions)	1995	1994	1993
Capital stock and additional paid-in capital		1334	1333
Balance at beginning of the year	\$6,326.5	\$6,323.1	\$6,314.7
Tax benefit from exercise of GM Class H common stock options	11.6	3.4	8.4
Balance at end of the year	\$6,338.1	\$6,326.5	\$6,323.1
Net income retained for use in the business			<del>+ 0,020.1</del>
Balance at beginning of the year	\$1,743.6	\$1,138.2	\$ 628.4
Net income	948.3	925.4	797.8
Cash dividends paid to General Motors	(368.0)	(320.0)	(288.0)
Balance at end of the year	\$2,323.9	\$1,743.6	\$1,138.2
Minimum pension liability adjustment			
Balance at beginning of the year	\$ (76.1)	\$ (120.4)	\$ (104.3)
Change during the year	(32.5)	44.3	(16.1)
Balance at end of the year	\$ (108.6)	\$ (76.1)	\$ (120.4)
Accumulated foreign currency translation adjustments			Ψ (120.1)
Balance at beginning of the year	\$ (18.2)	\$ (12.8)	\$ (23.8)
Change during the year	(9.5)	(5.4)	11.0
Balance at end of the year	\$ (27.7)	\$ (18.2)	\$ (12.8)

As sole stockholder of Hughes, GM is able to cause Hughes to pay cash dividends and make advances to or otherwise enter into transactions with GM as GM deems desirable and appropriate. GM reserves the right to cause Hughes to pay cash dividends to GM in such amounts as GM determines are desirable under the then prevailing facts and circumstances. Such amounts may be the same as, greater than, or less than the cash dividends paid by GM on its Class H common stock. There is no fixed relationship, on a per share or aggregate basis, between the cash dividends that may be paid by GM to holders of its Class H common stock and the cash dividends or other amounts that may be paid by Hughes to GM.

### NOTE 12: SPECIAL PROVISION FOR RESTRUCTURING

In 1992, Hughes recorded a special restructuring charge of \$1,237.0 million primarily attributable to redundant facilities and related employment costs. The special charge comprehended a reduction of Hughes' worldwide employment, a major facilities consolidation, and a reevaluation of certain business lines that no longer met Hughes' strategic objectives. Restructuring costs of \$208.8 million, \$228.3 million, and \$527.6 million were charged against the reserve during 1995, 1994, and 1993, respectively. In addition, in 1994 and 1993, the restructuring reserve was increased by \$35.0 million and \$78.0 million, respectively, primarily due to changes in the estimated loss on disposition of two subsidianes. The remaining liability of \$134.4 million relates primarily to reserves for excess facilities and other site consolidation costs. Approximately \$119.3 million of this

total will require future cash outflows. It is expected that these costs will be expended predominantly over the next two years.

### NOTE 13: ACQUISITIONS AND DIVESTITURES

In February 1995, Hughes acquired substantially all of the assets of CAE-Link Corporation for \$176.0 million in cash. CAE-Link is an established supplier of simulation, training, and technical services, primarily to the U.S. military and NASA. In December 1995, Hughes acquired all of the stock of Magnavox Electronic Systems Company (Magnavox) for \$382.4 million, consisting of cash of \$70.5 million, a note payable of \$302.7 million, and estimated additional amounts to be paid of \$9.2 million. Magnavox is a leading supplier of military tactical communications, electronic warfare, and command and control systems. In addition, Hughes acquired several other enterprises with oper-

ations that complement existing technological capabilities at aggregate purchase prices, paid in cash, of \$63.0 million and \$10.4 million in 1995 and 1993, respectively.

All acquisitions were accounted for using the purchase method of accounting. The operating results of the entities acquired were consolidated with those of Hughes from their respective acquisition dates. These acquisitions did not have a material impact on the operating results of Hughes. The purchase price of each acquisition was allocated to the net assets acquired, including intangible assets, based upon their estimated fair values at the date of acquisition.

During 1995, Hughes divested several non-strategic enterprises generating aggregate proceeds of approximately \$127.2 million and a net loss of approximately \$8.2 million, which included the write-off of \$30.1 million of purchase accounting adjustments related to GM's acquisition of Hughes Aircraft Company. Also in 1995, Hughes recorded a \$46.0 million charge for the estimated loss on disposition of a business unit (including \$6.0 million related to the write-off of GM purchase accounting adjustments) and completed the divestiture of Hughes LAN Systems, for which a pre-tax charge of \$35.0 million was taken in 1994.

# NOTE 14: DERIVATIVE FINANCIAL INSTRUMENTS AND RISK MANAGEMENT

Hughes is a party to financial instruments with off-balance sheet risk in the normal course of business to reduce its exposure to fluctuations in foreign exchange rates. The primary class of derivatives used by Hughes is foreign exchange-forward contracts. These instruments involve, to varying degrees, elements of credit risk in the event a counterparty should default and market risk as the instruments are subject to rate and price fluctuations. Credit risk is managed through the periodic monitoring and approval of financially sound counterparties. Market risk is mitigated because the derivatives are used to hedge underlying transactions. Cash receipts or payments on these contracts normally occur at maturity. Hughes holds derivatives only for purposes other than trading.

Foreign exchange-forward contracts are legal agreements between two parties to purchase and sell a foreign currency, for a price specified at the contract date, with delivery and settlement in the future. Hughes uses these agreements to hedge risk of changes in foreign currency exchange rates associated with certain firm commitments denominated in foreign currency.

The total notional amount of foreign exchange-forward contracts Hughes held at December 31, 1995 and 1994, was approximately \$289 million and \$144 million, respectively. Hughes' open contracts extend for periods averaging nine months.

#### NOTE 15: FAIR VALUE OF FINANCIAL INSTRUMENTS

In accordance with the requirements of SFAS No. 107, Disclosures about Fair Value of Financial Instruments, and SFAS No. 119, Disclosures about Derivative Financial Instruments and Fair Value of Financial Instruments, the following fair value estimates and information about valuation methodologies are presented. For all financial instruments not described below, fair value approximates book value.

For notes and loans payable and long-term debt, the estimated fair value (which approximates book value) was \$694.9 million and \$479.9 million at December 31, 1995 and 1994, respectively. Such fair value is based on the quoted market prices for similar issues or on the current rates offered to Hughes for debt of similar remaining maturities. The carrying value of debt with an original term of less than 90 days is assumed to approximate fair value.

The fair values of derivative financial instruments reflect the estimated amounts Hughes would receive or pay to terminate the contracts at the reporting date, which takes into account the current unrealized gains or losses on open contracts. The fair value of foreign exchange-forward contracts is estimated based on foreign exchange rate quotes at the reporting date. At December 31, 1995 and 1994, the estimated fair value of open contracts, which were in a net gain position, was \$10.7 million and \$3.9 million, respectively. No amounts were recorded in the Consolidated Balance Sheet for these contracts in 1995 and 1994.

### NOTE 16: SEGMENT REPORTING

Prior to 1995, Hughes reported its operations in four business segments: Automotive Electronics, Defense Electronics, Telecommunications and Space, and Commercial Technologies. In connection with organizational changes, effective January 1, 1995, Hughes now reports its operations in three segments: Automotive Electronics, Telecommunications and Space, and Aerospace and Defense Systems. This new segment presentation better reflects Hughes' strategic direction and the manner in which its businesses are managed. All 1994 and 1993 financial data have been restated to reflect the new segment reporting format.

Hughes operates within the field of modern high-technology electronics for use in Automotive Electronics, Telecommunications and Space, and Aerospace and Defense Systems business segments. Radios, controls for engines and transmissions, navigation and communication systems, monitors and sensors for air bags, controllers for anti-lock brakes, climate control, dashboard instrumentation, vehicle security electronics, and other automotive electronic products are included in the Automotive Electronics segment. The

Telecommunications and Space segment includes satellite construction, ownership and operation, communications services, ground equipment, and direct-to-home satellite television entertainment services. The Aerospace and Defense Systems segment includes missile systems, command and control systems, torpedoes and sonar

systems, electro-optical systems, airborne radar systems, military training and simulation systems, air traffic control systems, information systems, and guidance and control systems. Intercompany transfers between segments are not material. Information concerning operations by business segment is shown below.

(Dollars in Millions)	AUTOMOTIVE	TELECOMMUNICATIONS	AEROSPACE AND	CORPORATE	
	ELECTRONICS	AND SPACE	DEFENSE SYSTEMS	AND OTHER	TOTAL
Revenues					
1995	\$5,561.3	\$ 3,092.7	\$ 5,945.4	\$ 172.4	.\$14,771.8
1994	5,221.7	2,596.2	6,023.6	257.9	14,099.4
1993	4,453.4	2,238.3	6,472.2	353.6	13,517.5
Operating Profit (Loss) (1)					10,017.0
1995	\$ 869.0	\$ 168.2	\$ 587.1	\$ (80.4)	\$ 1,543.9
1994	794.8	250.0	562.7	(100.9)	1,506.6
1993	624.3	188.6	563.3	(39.9)	1,336.3
Identifiable Assets at Year-End (2)				(66.6)	1,000.0
1995	\$3,934.0	\$ 4,121.8	\$ 7,247.3	\$ 671.3	\$15,974.4
1994	3,429.8	3,727.8	6,712.0	980.9	14,850.5
1993	2,748.7	3,070.3	7,322.1	976.0	14,117.1
Depreciation and Amortization (1)				010.0	17,117,1
1995	\$ 151.4	\$ 199.3	\$ 232.9	\$ 27.5	\$ 611.1
1994	142.2	161.8	259.4	30.6	594.0
1993	146.8	135.0	302.1	43.4	627.3
Capital Expenditures (3)		The second secon			027.5
1995	\$ 264.7	\$ 436.5	\$ 109.8	\$ 9.3	\$ 820.3
1994	166.4	399.3	159.5	21.1	746.3
1993	148.2	271.8	131.4	28.6	580.0

<sup>(1)</sup> Includes purchase accounting adjustments associated with GM's purchase of Hughes Aircraft Company of \$123.4 million in 1995 (\$21.0 million, \$100.9 million, and \$1.5 million related to Telecommunications and Space, Aerospace and Defense Systems, and Corporate and Other, respectively) and \$123.8 million in 1994 and 1993 (\$21.0 million, \$100.9 million, and \$1.9 million related to Telecommunications and Space, Aerospace and Defense Systems, and Corporate and Other, respectively).

<sup>(2)</sup> Identifiable assets include the unamortized purchase accounting adjustments associated with the purchase of Hughes Aircraft Company as detailed below:

	Telecommunications and Space	AEROSPACE AND DEFENSE SYSTEMS	CORPORATE AND OTHER	TOTAL
1995	\$489.0	\$ 2,348.7	\$ 8.1	\$2,845.8
1994	510.0	2,449.6	45.7	3,005.3
1993	531.0	2,550.5	47.6	3,129.1

<sup>(3)</sup> Telecommunications and Space includes expenditures related to telecommunications and other equipment amounting to \$274.6 million, \$255.8 million, and \$131.1 million in 1995, 1994, and 1993, respectively.

A reconciliation of operating profit shown above to Income before Income Taxes shown in the Consolidated Statement of Income and Available Separate Consolidated Net Income follows:

(Dollars in Millions)	1995	1994	1993
Operating Profit	\$1,543,9	\$1,506,6	\$1,336.3
Other Income - net	57.5	37.1	67.3
Interest Expense	(7.5)	(15.1)	(33.2)
Income before Income Taxes	\$1,593.9	\$1,528.6	\$1,370.4

Export sales from the U.S. were as follows:

(Dollars in Millions)	1995	1994	1993
Africa	\$ 25.4	\$ 25.8	\$ 28.2
Asia	948.9	758.2	593.4
Canada	861.8	876.3	820.7
Europe	929.4	678.6	503.1
Mexico	143.4	96.9	122.9
Other Latin America	76.0	. 90.3	68.3
Middle East	327.0	370.1	404.4
Total	\$3,311.9	\$2,896.2	\$2,541.0

### NOTE 17: COMMITMENTS AND CONTINGENT LIABILITIES

Hughes signed agreements in 1995 to procure commercial satellite launches, a significant number of which are expected to be used in connection with satellites ordered by outside customers. The agreements provide for launches beginning in 1998 and also contain options for additional launch vehicles. The total amount of the commitment, which is dependent upon the number of options exercised, market conditions, and other factors, is in excess of \$1 billion.

In December 1994, Hughes entered into an agreement with Computer Sciences Corporation (CSC) whereby CSC provides a significant amount of the non-automotive data processing services required by Hughes. Baseline service payments to CSC are expected to aggregate approximately \$1.5 billion over the term of the eight-year agreement. The contract is cancelable by Hughes with substantial early termination penalties.

Minimum future commitments under operating leases having non-cancelable lease terms in excess of one year, primarily for real property and satellite transponders, aggregating \$2,010.3 million, are payable as follows: \$232.3 million in 1996, \$198.5 million in 1997, \$174.3 million in 1998, \$172.7 million in 1999, \$165.6 million in 2000, and \$1,066.9 million thereafter. Certain of these leases contain escalation clauses and renewal or purchase options. Rental expenses under operating leases were \$257.9 million in 1995, \$306.2 million in 1994, and \$296.3 million in 1993.

Hughes and its subsidiaries are subject to potential liability under government regulations and various claims and legal actions which are pending or may be asserted against them. The aggregate ultimate liability of Hughes and its subsidiaries under these government regulations,

and under these claims and actions, was not determinable at December 31, 1995. In the opinion of management of Hughes, such liability is not expected to have a material adverse effect on Hughes' consolidated operations or financial position.

In 1973, Hughes Aircraft Company filed a lawsuit against the U.S. Government in the U.S. Court of Claims for infringement of a patent utilized in the design of satellites (the "Williams Patent"). In late 1983, the U.S. Court of Appeals ruled that the patent was valid and that the Government had infringed the patent. In June 1994, the U.S. Court of Claims issued a decision awarding Hughes damages of \$114 million. Both parties to the lawsuit have appealed the judgment, with Hughes asserting that the award did not adequately compensate it for damages suffered. In the opinion of the management of Hughes, there is a reasonable possibility that this matter could be resolved in the near term. While no amount has been recorded in Hughes' financial statements pending the outcome of the case, resolution could result in a gain that would be material to the financial statements.

### NOTE 18: SUBSEQUENT EVENT

In January 1996, Hughes and DIRECTV, a wholly-owned subsidiary of Hughes, reached a tentative agreement with AT&T wherein AT&T is to market and distribute DIRECTV entertainment service and DSS® equipment. In addition, AT&T agreed to acquire a 2.5% equity interest in DIRECTV for \$137.5 million, with options to increase its ownership interest under certain conditions. These transactions are subject to completion of definitive agreements and regulatory approvals.

	***************************************	1995	QUARTERS	S	1994 QUARTERS						
SELECTED QUARTERLY DATA (Unaudited)	1sт	2ND	3RD	4тн	1st	2ND	3RD	4тн			
Revenues	\$3,578.8	\$3,723.6	\$3,441.3	\$4,028.1	\$3,587.3	\$3,535.9	\$3,354.5	\$3,621.7			
Income before income taxes	\$ 403.3		\$ 310.6	\$ 443.7	\$ 477.3	\$ 400.6	\$ 361.4	\$ 289.3			
Income taxes	. 165.4	178.8	121.6	179.8	195.8	164.2	148.2	64.6			
Income before cumulative effect							140.2				
of accounting change	237.9	257.5	189.0	263.9	281.5	236.4	213.2	224.7			
Cumulative effect of accounting change	_	-	_	_	(30.4)		210,2	224.1			
Net income	\$ 237.9	\$ 257.5	\$ 189.0	\$ 263.9	\$ 251.1	\$ 236.4	\$ 213.2	\$ 224.7			
Earnings used for computation			+ (33.5	<b>4</b> 200.0	Ψ 201.1	Ψ 200.4	Ψ 210.2	Φ 224.1			
of available separate consolidated											
net income	\$ 268.9	\$ 288.4	\$ 256.1	\$ 294.4	\$ 282.1	\$ 267.3	\$ 244.2	<b>4</b> 0556			
Average number of shares of General		<b>\$</b> 200.1	Ψ 200.1	Ψ 204.4	Ψ 202.1	φ 207.3	Ф 244.2	\$ 255.6			
Motors Class H common stock						•	•				
outstanding (in millions)	94.2	95.4	95.9	96.5	90.6	91.7	92.7	00.0			
Class H dividend base (in millions)	399.9	399.9	399.9	399.9	399.9	399.9		93.3			
Available separate consolidated		000.0	000.0	099.9	055.5	399.9	399.9	399.9			
net income	\$ 63.3	\$ 68.8	\$ 61.4	\$ 71.1	\$ 64.0	\$ 61.3	Ф гоо	Ф 50.5			
Earnings attributable to General		Ψ 00,0	Ψ 01.4	Ψ /1.1	Φ 04.0	\$ 61.3	\$ 56.6	\$ 59.7			
Motors Class H common stock on a											
per share basis		•									
Before cumulative effect of											
accounting change	\$0.67	\$0.72	\$0.64	\$0.74	<b>ቀ</b> ለ 70	<b>ФО 07</b>	<b>\$0.04</b>				
Cumulative effect of accounting	ΨΟ.ΟΤ	Ψ0.72	Φ0.04	Φ0.74	\$0.78	\$0.67	\$0.61	\$0.64			
change	_	-			(0.00)*						
Net earnings attributable to				_	(80.0)		_	-			
General Motors Class H common stock	\$0.67	\$0.72	\$0.64	\$0.74	\$0.70	Φ0.07	40.04				
Stock price range of General Motors Class	Ψ0.07	Ψ0.72	\$0.04	Φ0.74	\$0.70	\$0.67	\$0.61	\$0.64			
H common stock						•					
High	\$41.75	\$41.63	\$42.75	\$50.00	<b>0.40.00</b>	<b>\$00.75</b>	:000 oc	<b>*</b> 0= ==			
Low	\$33.25	\$37.75		-	\$40.38	\$38.75	\$38.00	\$37.75			
20	φυσ.20	Φ31.15	\$39.13	\$39.50	\$32.63	<b>\$</b> 31 <i>.</i> 75	\$34.63	\$31.00			

<sup>•</sup> Effective January 1, 1994, Hughes adopted SFAS No. 112. The unfavorable cumulative effect of adopting SFAS No. 112 was \$30.4 million, or \$6.8 million attributable to GM Class H common stock.

## **DECLARATION**

The	undersigned	hereby	declares	under	penalty	of	perjury	that:
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	1.	I am	Car1	Α.	Brown	of	Hughes	Communications	Galaxy.
Inc.							•		,

2. The foregoing is a true and correct copy of the consolidated financial statements of Hughes Electronics Corporation (a parent company of Hughes Communications Galaxy, Inc.) for the year ended December 31, 1995, including the report of Deloitte & Touche LLP, the company's independent certified public accountants, as published in the 1995 annual report of Hughes Electronics Corporation.

Carl A. Brown

Senior Vice President

April 18, 1996

		1995		1994		1993		1992		1991
Revenues	\$14,771.8		\$14,099.4		\$13,517.5		\$ 12,297.1		\$11,540.6	
Earnings (Loss) used for computation of available separate										
consolidated net income (loss)	\$ 1	,107.8	\$	1,049.2	\$	921.6	\$	(921.6)	.\$	559.4
Average number of shares of General Motors										
Class H common stock outstanding (in millions)		95.5		92.1		88.6		75.3		73.7
Class H dividend base (in millions)		399.9		399.9		399.9		399.9		399.9
Available separate consolidated net income (loss)	\$	264.6	\$	241.6	\$	204.5	\$	(142.3)	\$	104.6
GM Class H cash dividends	\$	87.9	\$	73.8	\$	64.1	\$	53.3	\$	54.3
Dividend payout ratio (1)		36.4%		36.0%		N/A		51.0%		33.9%
Earnings (Loss) attributable to General Motors Class H common stock on a per share basis before cumulative										
effect of accounting changes		\$2.77		\$2.70		\$2.30		\$(0.11)		\$1.26
Earnings (Loss) attributable to General Motors Class H common stock on a per share basis after cumulative										
effect of accounting changes		\$2.77		\$2.62		\$2.30		\$(2.29)		\$1.39
Capital expenditures (2)	\$	820.3	\$	746.3	\$	580.0	\$	558.5	\$	681.3
Cash and cash equivalents	\$ 1	,139.5	\$	1,501.8	\$	1,008.7	\$	702.7	\$	348.3
Working capital	\$ 2	,502.0	\$	2,695.5	\$	2,165.2	\$	1,692.4	\$	1,548.8
Total assets	\$15	,974.4	\$1	14,850.5	\$1	4,117.1	\$ 1	14,209.2	\$1	2,930.8
Long-term debt and capitalized leases	\$	258.8	\$	353.5	\$	416.8	\$	711.0	\$	147.1
Return on equity* (3)		11.5%		12.1%		11.3%		(13.9%)		5.3%
Income (Loss) before interest and taxes as a										
percent of capitalization (4)		18.7%		19.0%		18.0%		(2.3%)		8.1%
Pre-tax return on total assets (5)		10.3%		10.6%		9.7%		(1.8%)		5.2%

<sup>\*</sup> Includes (unfavorable) favorable cumulative effect of accounting changes of \$(30.4) million in 1994, \$(872.1) million in 1992, and \$54.4 million in 1991.

### WHAT IS CLASS H STOCK?\*

### GM Has Three Classes of Common Stock

This annual report is prepared for the benefit of holders of General Motors Corporation ("GM") Class H common stock, GM has three classes of common stock, Class H (ticker symbol GMH), Class E (ticker symbol GME) and \$1.2% par value (ticker symbol GM). Holders of Class H and Class E common stock have no direct rights in the equity or assets of Hughes Electronics Corporation (Hughes) or Electronic Data Systems Corporation (EDS), respectively, but rather have rights in the equity and assets of GM, which includes 100 percent of the stock of Hughes and EDS. For purposes of determining the approximate earnings per stare attributable to Class H common stock for financial reporting purposes, an investor may divide the quarterly Hughes earnings allocated to Class H common stock (the Available Separate Consolidated Net Income of Hughes) by the weighted average number of shares of Class H common stock outstanding during such quarter. A similar calculation may be performed to determine the approximate earnings per share attributable to Class E common stock. Earnings per share of GM \$1.2% par value common stock are calculated on the consolidated earnings of GM excluding the aggregate earnings attributed to the outstanding shares of Class H and Class E common stock.

# CLASS H IS A GM STOCK WITH DIVIDEND PAYMENTS LINKED TO THE PERFORMANCE OF HUGHES

Class H common stock, which is issued by GM, is designed to provide holders with financial returns based on the performance of Hughes and not the performance of any other GM subsidiaries, divisions, or operations. The current dividend policy of the GM Board of Directors is to pay quarterly dividends on Class H common stock at an annual rate equal to approximately 35 percent of the Available Separate Consolidated Net Income of Hughes for the prior year as described herein. The Board may change dividend practices and policies with respect to Class H common stock, or any other class of GM common stock, at any time.

# EARNINGS ATTRIBUTABLE TO CLASS H STOCK ARE NOT AFFECTED BY HUGHES AIRCRAFT COMPANY ACQUISITION INTANGIBLES

The Hughes Consolidated Statement of Income reflects amortization and adjustment of purchase accounting adjustments arising from GM's acquisition of Hughes Aircraft Company in 1985 of \$159.5 million in 1995 and \$123.8 million in 1994 and 1993. Also, \$2.8 billion and \$3.0 billion, respectively, of related unamortized intangible assets are included in the December 31, 1995 and 1994 Consolidated Balance Sheet. GM's Certificate of Incorporation provides that, in calculating the amount available for payment of dividends on Class H stock (which amount is also used to calculate the earnings attributable to Class H stock on a per share basis), amortization and adjustment of the excess purchase price for the acquisition of Hughes Aircraft Company will not be charged against the earnings of Hughes. For purposes of calculating the amounts available for payment of dividends on Class H stock and on the \$1% par value stock, amortization and adjustment of such purchase accounting adjustments is charged against the amounts available for the payment of dividends on GM's \$1% par value stock, not the Class H stock. This annual report also provides supplemental data that enables readers to review the financial performance of Hughes, excluding amortization and adjustment of GM purchase accounting adjustments related to Hughes Aircraft Company.

"Not a part of the Notes to Consolidated Financial Statements.

<sup>(1)</sup> GM Class H cash dividends divided by available separate consolidated net income for the prior year.

<sup>(2)</sup> Includes expenditures related to telecommunications and other equipment amounting to \$274.6 million, \$255.8 million, \$131.1 million, \$101.6 million, and \$88.3 million in 1995, 1994, 1993, 1992, and 1991, respectively.

<sup>(3)</sup> Net Income (Loss) divided by average stockholder's equity (General Motors' equity in its wholly-owned subsidiary, Hughes). Holders of GM Class H common stock have no direct rights in the equity or assets of Hughes, but rather have rights in the equity and assets of GM (which includes 100% of the stock of Hughes).

<sup>(4)</sup> Income (Loss) before interest and taxes divided by average stockholder's equity plus average debt.

<sup>(5)</sup> Income (Loss) before Income Taxes divided by average total assets.