

MTSO Up To Cell Site Down @ OC-1 Rate				
	Uplink		Downlink	
	Clear	Rain	Clear	Rain
Satellite Altitude, km	1350	1350	1350	1350
Grazing Angle, deg	22.0	22.0	22.0	22.0
Slant Range, km	2585.9	2585.9	2585.9	2585.9
SIGNAL PARAMETERS				
Frequency, MHz	50000	50000	40000	40000
Wavelength, cm	0.6	0.6	0.75	0.75
Information Rate, Mbps	51.84	51.84	51.84	51.84
Modulation	QPSK	QPSK	QPSK	QPSK
PATH PARAMETERS				
Path loss, dB	194.7	194.7	192.7	192.7
Atmospheric loss, dB	13.6	13.6	1.8	1.8
Rain loss, dB	0.0	12.6	0.0	9.6
Polarization loss, dB	0.13	0.13	0.13	0.13
Scintillation Loss, dB (3 sigma)	0.75	0.75	0.75	0.75
Edge of Coverage Loss, dB	1.00	1.00	1.00	1.00
Total propagation loss, dB	210.1	222.7	196.4	206.0
TRANSMIT RF PARAMETERS				
Power output, W	3.0	46.1	0.30	2.91
Output losses, dB	0.5	0.5	1.5	1.5
Antenna diameter, m	1.50	1.50	0.45	0.45
Antenna Gain, dB	56.4	56.4	40.6	40.6
Pointing loss, dB	1.0	1.0	1.0	1.0
Effective EIRP, dBW	59.7	71.5	32.9	42.7
RECEIVE RF PARAMETERS				
System temperature, degK	817	817	503	716
Antenna diameter, m	0.36	0.36	0.66	0.66
Antenna Gain, dB	40.6	40.6	47.3	47.3
Pointing loss, dB	1.0	1.0	1.0	1.0
Effective G/T, dBK	10.5	10.5	19.3	17.8
ONE-WAY LINK SUMMARIES				
Received power per carrier, dBW	-110.9	-111.6	-117.2	-117.0
Received thermal noise, dBW	-121.8	-121.8	-123.9	-122.4
Received interference, dBW	-129.2	-130.0	-132.7	-132.5
TWO-WAY LINK SUMMARY				
Required Eb/(No+Io), dB			2.2	2.2
Modem loss, dB			1.5	1.5
Eb/(No+Io) at Modem, dB			4.7	3.7
EXCESS MARGIN, dB			1.0	0.0

Table A-2. Link Budget for an MTSO up to a Cell Site down at OC-1 rate

OC-1 Server Up To OC-1 Server Down via 6 Satellite Crosslinks @ OC-1 Rate				
	Uplink		Downlink	
	Clear	Rain	Clear	Rain
Satellite Altitude, km	1350	1350	1350	1350
Grazing Angle, deg	22.0	22.0	22.0	22.0
Slant Range, km	2585.9	2585.9	2585.9	2585.9
SIGNAL PARAMETERS				
Frequency, MHz	50000	50000	40000	40000
Wavelength, cm	0.6	0.6	0.75	0.75
Information Rate, Mbps	51.84	51.84	51.84	51.84
Modulation	QPSK	QPSK	QPSK	QPSK
PATH PARAMETERS				
Path loss, dB	194.7	194.7	192.7	192.7
Atmospheric loss, dB	13.6	13.6	1.8	1.8
Rain loss, dB	0.0	12.6	0.0	9.6
Polarization loss, dB	0.13	0.13	0.13	0.13
Scintillation Loss, dB (3 sigma)	0.75	0.75	0.75	0.75
Edge of Coverage Loss, dB	1.00	1.00	1.00	1.00
Total propagation loss, dB	210.1	222.7	196.4	206.0
TRANSMIT RF PARAMETERS				
Power output, W	9.9	79.4	0.17	2.0
Output losses, dB	0.5	0.5	1.5	1.5
Antenna diameter, m	1.50	1.50	0.45	0.45
Antenna Gain, dB	56.4	56.4	40.6	40.6
Pointing loss, dB	1.0	1.0	1.0	1.0
Effective EIRP, dBW	64.8	73.9	30.4	41.1
RECEIVE RF PARAMETERS				
System temperature, degK	817	817	503	716
Antenna diameter, m	0.36	0.36	1.50	1.50
Antenna Gain, dB	40.6	40.6	54.4	54.4
Pointing loss, dB	1.0	1.0	1.0	1.0
Effective G/T, dBK	10.5	10.5	26.4	24.9
ONE-WAY LINK SUMMARIES				
Received power per carrier, dBW	-105.7	-109.3	-112.6	-111.4
Received thermal noise, dBW	-121.8	-121.8	-123.9	-122.4
Received interference, dBW	-124.1	-127.6	-128.0	-126.9
TWO-WAY LINK SUMMARY				
Required Eb/(No+Io), dB			2.7	2.7
Modem loss, dB			1.5	1.5
Eb/(No+Io) at Modem, dB			8.5	7.5
Overdrive for 6 Crosslink Hops, dB			3.3	3.3
EXCESS MARGIN, dB			1.0	0.0

Table A-3. Link Budget for an MTSO up to an MTSO down via 6 satellite crosslinks at OC-1 rate

Crosslinks @ OC-1 Rate		
Slant Range, km	7700.0	
SIGNAL PARAMETERS		
Frequency, GHz	63.9	
Wavelength, cm	0.469	
Information Rate, Mbps	51.84	
Modulation	QPSK	
PATH PARAMETERS		
Path loss, dB	206.3	
Total propagation loss, dB	206.3	
TRANSMIT RF PARAMETERS		
Power output per carrier, W	0.235	
Output losses, dB	1.5	
Antenna diameter, m	1.20	
Antenna Gain, dB	55.9	
Pointing loss, dB	0.2	
Effective EIRP, dBW	47.9	
RECEIVE RF PARAMETERS		
System temperature, degK	744	
Antenna diameter, m	1.20	
Antenna Gain, dB	55.9	
Pointing loss, dB	0.2	
Effective G/T, dBK	27.0	
ONEWAY LINK SUMMARY		
Received power per carrier, dBW	-102.7	
Received thermal noise, dBW	-122.2	
Received interference, dBW	-119.3	
Eb/(No+Io) for One Link	14.9	
MULTI-LINK SUMMARIES		
	clear	rain
Number Of Crosslink Hops		6
Eb/(No+Io) For N Hops	7.1	7.1
Required Eb/(No+Io), dB	2.7	2.7
Modem loss, dB	1.5	1.5
Eb/(No+Io) at Modem, dB	4.2	4.2
EXCESS MARGIN, dB	0.0	0.0

Table A-4. Crosslink Budget and 6 Hop Summary

EIRP(dBW)	19.9
Power Flux Density(dBW/m2/MHz)	-134

Table A-5. Power Flux Density @ 25 Deg. El. in clear air

(Cell Site up to an MTSO down)

EIRP(dBW)	31.6
Power Flux Density(dBW/m2/MHz)	-129

Table A-6. Power Flux Density @ 25 Deg. El. in clear air (MTSO up to Cell Site down)

EIRP(dBW)	28.9
Power Flux Density(dBW/m2/MHz)	-132

Table A-7. Power Flux Density @ 25 Deg. El. in clear air (OC-1 up to OC-1 down)

C. Transmission Characteristics - TT&C Links

All TT&C functions necessary for monitoring and controlling the spacecraft will be performed by the TT&C subsystem. TT&C ground stations will be appropriately sized to maintain highly reliable TT&C links under all operating conditions. Command signaling will include authentication codes to prevent intentional or unintentional access to the spacecraft command functions. Command uplink channels will be at 56 kbps rates on carrier frequencies in

the 47.2 to 50.2 GHz band. Telemetry downlink channels will be at 100 kbps rates on carrier frequencies in the 37.5 to 40.5 GHz band.

As many as eight channels will be used in each band for TT&C signaling, allowing simultaneous communications to multiple spacecraft. Each channel will use QPSK modulation. The complete set of channels will occupy a maximum of 2.5 MHz (both up and down) , which includes allowances for Doppler. The satellite main mission antennas will be used for normal TT&C operations.

Table A-8 provides representative link budget calculations for the TT&C uplink and downlink for a worst case ground elevation angle of 15 degrees.

TT&C Link Budget				
	Uplink		Downlink	
	Clear	Rain	Clear	Rain
Satellite Altitude, km	1350	1350	1350	1350
Grazing Angle, deg	15.0	15.0	15.0	15.0
Slant Range, km	3014.9	3014.9	3014.9	3014.9
SIGNAL PARAMETERS				
Frequency, MHz	50000	50000	40000	40000
Wavelength, cm	0.6	0.6	0.75	0.75
Information Rate, Mbps	0.056	0.056	0.100	0.100
Modulation	QPSK	QPSK	QPSK	QPSK
PATH PARAMETERS				
Path loss, dB	196.0	196.0	194.1	194.1
Atmospheric loss, dB	14.7	14.7	1.8	1.8
Rain loss, dB	0.0	55.3	0.0	41.8
Polarization loss, dB	0.33	0.33	0.33	0.33
Scintillation Loss, dB (3 sigma)	0.10	0.10	0.10	0.10
Edge of Coverage Loss, dB	0.00	0.00	0.00	0.00
Total propagation loss, dB	211.1	266.4	196.3	238.1
TRANSMIT RF PARAMETERS				
Power output, W	0.005	150	0.0010	0.60
Output losses, dB	1.0	1.0	1.5	1.5
Antenna diameter, m	3.00	3.00	0.4	0.4
Antenna Gain, dB	62.4	62.4	40.4	40.4
Pointing loss, dB	1.0	1.0	0.0	0.0
Effective EIRP, dBW	37.4	82.2	9.1	36.7
RECEIVE RF PARAMETERS				
System temperature, degK	817	817	503	743
Antenna diameter, m	0.35	0.35	3.00	3.00
Antenna Gain, dB	40.4	40.4	60.5	60.5
Pointing loss, dB	0.0	0.0	1.0	1.0
Effective G/T, dBK	11.3	11.3	32.5	30.8
LINK SUMMARY				
Received Power per Carrier (dBW)	-133.30	-143.84	-127.76	-141.95
Distortion & Modem Loss (dB)	1.50	1.50	1.50	1.50
Required Eb/(No+Io) (dB)	5.00	5.00	5.00	5.00
C/I=Es/Io	18.49	18.49	21.35	21.35
Eb/Io (dB)	15.49	15.49	18.35	18.35
Req. Eb/No (dB)	7.09	7.09	6.79	6.79
Required Power per Carrier (dBW)	-144.14	-144.14	-144.03	-142.33
Excess Margin, dB	10.84	0.30	16.27	0.38

Table A-8. TT&C Link Budget

Table A-9 shows the power flux density for the TT&C link in a clear air environment.

EIRP(dBW)	9.1
Power Flux Density(dBW/m ² /MHz)	-125

Table A-9. Power Flux Density @ 25 Deg. El. in clear air (TT&C)

APPENDIX B

M-STAR SYSTEM

SPECTRUM UTILIZATION AND SHARING ANALYSIS

APPENDIX B: SHARING ANALYSIS

A. Multiple NGSO/FSS Sharing Analysis

1. Background

Mitigating the interference between multiple NGSO/FSS systems operating in a co-directional, co-frequency manner can be accomplished with methodologies such as space diversity/division, polarization diversity, time division and code division (spread spectrum). This section examines the ability to use space diversity/division to mitigate interference. This concept allows sharing between two GSO systems. This method relies on multiple space stations being able to communicate with the same point on the Earth and the ground station being able to switch between these satellites.

The analysis is based on a methodology currently under study in the ITU.¹ The framework for this simulation is to “fly” the satellite systems in their intended orbits and allow each space station and ground station to track their respective aimpoints while taking into account the Earth’s rotation. A simulation of this framework is sampled over a period of time at a relatively fine rate. At each sample the range gain product is computed.² It can be shown that if power control is not used on either system, then the range gain product can be directly related to the

¹ “Methodology for assessing interference between co-frequency, co-directional non-GSO feeder links,” ITU Study Group 4A, Document 4A/TEMP/34-E.

² The range gain product is defined as $G_t(\varphi_1)G_r(\varphi_2)/4\pi R^2$ where $G_t(\varphi_1)$ is the transmit gain of the wanted transmitter in the direction of the victim receiver. $G_r(\varphi_2)$ is the receive gain of the victim receiver in the direction of the wanted transmitter and R is the path length between the transmitter and receiver. If power control is used, then the interference level needs to be computed (See 4A/TEMP/34-E).

interference level. The output result is the percentage of time that the range gain product for all interference paths is above a certain level. The interference geometry is show in Figure B-1

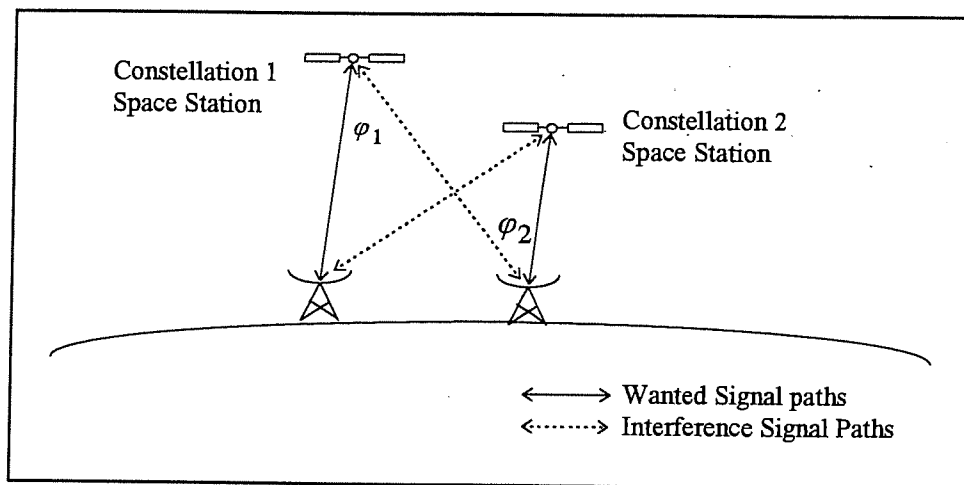


Figure B-1. Interference Geometry

2. Two NGSO/FSS Systems Simulation Results

The geometric analysis defined in this Appendix is applied to a sharing analysis that computes the percent time that the range gain product is above a given level. The M-Star System is referred to as Constellation 1 and a fictitious constellation is referred to as Constellation 2. The input parameters for the constellations are:

Input Parameter	M-Star (Constellation 1)	Constellation 2
Number of Satellites	72	60
Number of Planes	12	10
Orbit altitude (km)	1350	2100
Inclination (deg)	47	44
Right ascension of ascending node (deg) (First to Last Plane)	0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330	0, 36, 72, 108, 144, 180, 216, 252, 288, 324
Anomaly of first satellite in each plane (deg) (First to Last Plane)	0, 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275	0, 6, 12, 18, 24, 30, 36, 42, 48, 54
Minimum elevation (deg)	22	22
Space vehicle maximum transmit gain (dBi)	40.7	37
Space vehicle maximum receive gain (dBi)	40.7	37
Ground Station North Latitude (deg)	35	35
Ground Station West Longitude (deg)	113	113
Ground station maximum transmit gain (dBi)	56.4	52
Ground station maximum receive gain (dBi)	54.5	50

Table B-1: M-Star System and other NGSO/FSS system simulation input parameters

Interference Path	$\max \frac{G_t(\varphi_1)G_r(\varphi_2)}{4\pi R^2}$ (dB/m ²)
Constellation 1 downlink into Constellation 2 downlink	-42.9
Constellation 1 uplink into Constellation 2 uplink	-43.6
Constellation 2 downlink into Constellation 1 downlink	-45.5
Constellation 2 uplink into Constellation 1 uplink	-40.9

Table B-2: Maximum value of the range gain product for the four possible interference paths

Table B-2 shows the maximum value of the range gain product. Table B-3 shows the results of mitigation between the constellations for a simulation time of 45 days sampled every 1.0 second with and without mitigation. The level at which mitigation is applied is 15 dB below the maximum range gain product of Constellation 2 downlink (interferer) into the Constellation 1 downlink (victim), i.e., Constellation 1 is employing satellite diversity.

Interference Path	No Mitigation	Mitigation
Constellation 1 downlink into Constellation 2 downlink	-42.9	-48.6
Constellation 1 uplink into Constellation 2 uplink	-43.6	-62.8
Constellation 2 downlink into Constellation 1 downlink	-45.5	-57.8
Constellation 2 uplink into Constellation 1 uplink	-40.9	-49.0

Table B-3: Effect of mitigation on range gain product for the four possible interference paths at the maximum interference level

Table B-3 shows that by applying this mitigation technique, the level of interference between the two systems is reduced by 5.7 to 19.2 dB; therefore the two systems can share. Further reduction in the interference level can be achieved by both systems employing space diversity. The example shown in this Appendix has only one system applying space diversity to reduce the level of interference between the two systems.

B. Sharing with High-Density Fixed Service Ground Stations

An analysis was performed to determine the minimum expected spacing between an operating Fixed Service (FS) ground station transmitter, and the receiver of an M-Star ground station receiving downlink signals, using a nominal carrier frequency of 48 GHz. The parameters used for this analysis are shown in Table B-4.

Fixed Service Transmitter		
EIRP	(dBW)	33.5
Antenna Gain	(dBi)	46
Bandwidth	(MHz)	200
Fading Margin (dB)		42
M-Star Downlink Receiver		
System Temperature	(K)	503
Antenna Gain	(dBi)	54.4
Propagation parameters		
H ₂ O Attenuation	(dB/km)	0.15
O ₂ Attenuation	(dB/km)	0.5 - 1.0

Table B-4 Analysis parameters for fixed service sharing with M-Star

The criterion for permissible interference to the downlink signals was $I_0/N_0 = 0.05$ (-13.01 dB). The boresight of the M-Star downlink antenna was assumed to point 22 degrees above the horizon, directly above the line of sight to the FS transmitting station.

For the worst-case situation where the main beam of the FS transmitting station was pointed directly at the M-Star ground station, and no power control was used, the required distance to keep I_0/N_0 at -13 dB is shown in Table B-5 (for the two cases where attenuation due to O₂ is 0.5 dB/km and 1.0 dB/km of path length). For the best-case situation when the FS transmitting station's beam is pointed far enough away that its gain falls to -10 dBi in the direction of the M-Star station (the minimum for the ITU antenna model used in the simulation for the FS station) the distances are also shown in Table B-5.

Power Control	Case	0.5 dB/km	1.0 dB/km
NO	Main beam case	18571 m	12600 m
	Back lobe case	117 m	116 m
YES	Main beam case	979 m	931 m
	Back lobe case	1.57 m	1.56 m

Table B-5 Attenuation distance required to meet interference requirements

If the transmitting signal can be power-controlled so that only the amount of power required to have reliable communication is actually used, the situation is considerably brighter.

Power control assumes that the signal is reduced by 37 dB (which would use up all but 5 dB of the 42 dB fade margin).

It may be concluded that implementation of power control on all such FS transmitters would enable both FS and Fixed-Satellite Service stations to share geographically and frequency-wise without the necessity of coordination. If power control is not implemented, coordination would be required.

APPENDIX C

**M-STAR SYSTEM
ADVANCE PUBLICATION INFORMATION**

DATE (Day/Month/Year)	/ /	FORM OF NOTICE SATELLITE NETWORK (APPENDIX 4)		PAGE 1 OF 5	AP4
Administration Serial Number					
NOTIFYING ADMINISTRATION	RR1042	RR1047A	NOTIFICATION INTENDED FOR		
USA /	Advance Publication <input checked="" type="checkbox"/>	Request for Assistance of the IFRB <input type="checkbox"/>	ADD <input checked="" type="checkbox"/>	MOD <input type="checkbox"/>	SUP <input type="checkbox"/>
			IFRB IDENTIFICATION NO. OF NETWORK TO BE MODIFIED/SUPPRESSED		

B. CHARACTERISTICS OF THE NETWORK

1. NAME OF THE SPACE STATION		M-Star			
2. DATE OF BRINGING INTO USE		Day/Month/Year 01/01/00	REFERENCE TO PREVIOUS SPECIAL SECTION NUMBER (if network modified)		Number AR11/A/
3a. ADMINISTRATIONS IN GROUP		USA			
3b. OPERATING AGENCY OR COMPANY		3c. ADMINSTRATIONS RESPONSIBLE FOR THE STATION			
		A			
4. ORBITAL INFORMATION					
a. FOR GEOSTATIONARY SATELLITES ONLY					
1. NOMINAL ORBITAL LONGITUDE		2. LONGITUDINAL TOLERANCE		3. INCLINATION	4. VISIBILITY ARC
				EXCURSION	5. SERVICE ARC
Degrees E/W		Degrees To West To East		Degrees	Degrees From W/E/W To E/E/W
6. REASON FOR SERVICE ARC < VISIBILITY ARC ATTACHED					
b. FOR NON-GEOSTATIONARY SATELLITES ONLY					
1. INCLINATION ANGLE	2. PERIOD		3. APOGEE	4. PERIGEE	5. CELESTIAL BODY
			(km)	(km)	
Degrees	Days D Hours				
	Hours H Min.				
47.0	1 H 53		1350	1350	72

GENERAL NOTES:

- i. This form of notice consists of four parts - 1, 2, 3 et 4. In each part, each information item/data field includes a number in its able. This number is the same that is used for the same item in Appendix 4 (ORB-88) within the same part. For example, on the page labelled "Form AP4 - 2" (at the bottom), the field "4a1. Maximum power density" is the first item in section (a) of the paragraph numbered 4 in Part C. The items from parts F and G of Appendix 4 have been included in parts C and D referred to above. The items from these parts have the letters F and G (correspondingly) preceding the number that is included in their labels.
- ii. Data items that are related are grouped together in a box. For example, the page labelled "Form AP4 - 2" (at the bottom) contains a box titled "Emissions and power characteristics". Its is possible to specify 6 different emissions with the associated power and power density information in this box. If there are more emissions, use another page of the same type to provide additional data, after checking (X) in the field labelled "More emissions on next page" on the preceding page. In all cases where there is more information than can fit in a box, follow this procedure.
- iii. This form can be used to add, modify or suppress and existing station, by checking the corresponding box at the top right-hand corner of this page in the area titled "Notification intended for". In the case of a modification of an existing station, where certain data fields are to be added, modified or suppressed, provide ALL the data in the particular box as they would look after the change. In addition, indicate that the corresponding beam, associated space station or frequency range values is being modified by entering M in the field that has been provided for this purpose at these levels.
- iv. Certain fields in this notice have a superscript "1" as part of their labels. This has the following meaning :
1 - This information is to be provided only if available.

C. SATELLITE NETWORK CHARACTERISTICS IN THE EARTH - TO - SPACE DIRECTION

SATELLITE RECEIVING ANTENNA BEAM DETAILS

PAGE 2 OF 5

5. CHARACTERISTICS OF THE BEAM ADD/MOD/SUP of the beam

b. RECEIVING BEAM DESIGNATION NOTE: For a steerable beam the third character of the beam designation shall be "R"
 OLD BEAM DESIGNATION (if changed)

ANTENNA CHARACTERISTICS

c1/d1/f1. MAXIMUM ISOTROPIC GAIN

+/-	dBi
+	56.4

g. POLARIZATION¹ c2/d2. ANTENNA GAIN CONTOURS DIAGRAM ATTACHED. SEE FIGURE NO.:

e/f2. ANTENNA RADIATION PATTERN DIAGRAM ATTACHED. SEE FIGURE NO.: h. ESTIMATED ANTENNA GAIN DIAGRAM VS ORBIT LONGITUDE ATTACHED SEE FIGURE NO.:

INFORMATION TO BE PROVIDED FOR THIS RECEIVING ANTENNA BEAM

2a. CLASS OF STATION <input type="text" value="EC"/>	2b. NATURE OF SERVICE <input type="text" value="OT"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	6. RECEIVING SYSTEM NOISE TEMPERATURE <input type="text" value="818"/> Kelvins
2a. CLASS OF STATION <input type="text" value="ED"/>	2b. NATURE OF SERVICE <input type="text" value="OT"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	

1. SERVICE AREA OR SERVICE AREA DIAGRAM ATTACHED SEE FIGURE NO.:

3/fb. FREQUENCY RANGE WITHIN WHICH THE CARRIERS WILL BE LOCATED				
	Add/Mod/Sup of the freq. range	FREQUENCY	k/M/G Hz	IFRB IDENTIFICATION NUMBER for modification/suppression
FROM	<input type="text"/>	<input type="text" value="47.2"/>	<input type="text" value="G"/>	<input type="text"/>
TO	<input type="text"/>	<input type="text" value="50.2"/>	<input type="text" value="G"/>	<input type="text"/>

INFORMATION RELATED TO THE ASSOCIATED TRANSMITTING STATION(S)

EMSSIONS AND POWER CHARACTERISTICS					8. MODULATION CHARACTERISTICS ATTACHED. SEE ATTACHMENT NO. ¹
7/4a3. NECESSARY BANDWIDTH OR Fc/G2a. DESIGNATION OF EMISSION ¹	4a2/4c. TOTAL PEAK POWER ¹	4a1. MAXIMUM POWER DENSITY	4d. MINIMUM CARRIER POWER ¹	Fd/GWb. SPACE/EARTH STATION E.I.R.P. ¹	
	+/- dBW	+/- dBW/Hz	+/- dBW	+/- dBW	
18M0G7W		-62.5			
90M0G7W		-59.4			
2M5G7D		-26.9			

F. SPACE STATION ADD/MOD/SUP of the station

CHARACTERISTICS OF TRANSMITTING SPACE STATION FOR SPACE-TO-SPACE RELAYS

a. SPACE STATION NAME

G2c. TELECOMMAND INFORMATION¹ ATTACHED. SEE ATTACHMENT NO.:

EARTH STATION ADD/MOD/SUP of the station

DESIGNATION OF TYPICAL EARTH STATION

4b1. RADIATION PATTERN (give reference pattern or provide diagram)

4b2. ANTENNA RADIATION DIAGRAM ATTACHED SEE FIGURE NO.:

MORE EMISSIONS ON NEXT PAGE MORE ASSOC. TRANSMITTING STATIONS ON NEXT PAGE

REMARKS

NOTES ON FILLING IN THIS PAGE:
 FOR EACH BEAM FIRST FILL IN THE BOX TITLED "CHARACTERISTICS OF THE BEAM".
 FOR EACH EARTH-TO-SPACE SERVICE AREA ASSOCIATED WITH THIS BEAM, FILL IN THE UPPER PORTION OF THE BOX TITLED "INFORMATION TO BE PROVIDED FOR THIS RECEIVING ANTENNA BEAM". FOR EACH SIZE (TYPE) OF TRANSMITTING EARTH STATION ANTENNA, FILL IN THE PORTION OF THE BOX TITLED "INFORMATION RELATED TO THE ASSOCIATED TRANSMITTING STATION(S)". USE ADDITIONAL PAGES AS NECESSARY. IF THIS IS A SPACE-TO-SPACE RELAY, IDENTIFY THE OTHER SPACE STATION(S) IN THE BOX TITLED "SPACE STATION". USING AS MANY PAGES AS NECESSARY.

C. SATELLITE NETWORK CHARACTERISTICS IN THE EARTH - TO - SPACE DIRECTION

SATELLITE RECEIVING ANTENNA BEAM DETAILS

PAGE 3 OF 5

5. CHARACTERISTICS OF THE BEAM ADD/MOD/SUP of the beam

b. RECEIVING BEAM DESIGNATION NOTE: For a steerable beam the third character of the beam designation shall be "R"
 OLD BEAM DESIGNATION (if changed)

ANTENNA CHARACTERISTICS

c1/d1/f1. MAXIMUM ISOTROPIC GAIN	<table border="1" style="margin: auto;"> <tr><td style="padding: 2px;">+/-</td><td style="padding: 2px;">dBi</td></tr> <tr><td style="padding: 2px;">+</td><td style="padding: 2px;">55.9</td></tr> </table>	+/-	dBi	+	55.9
+/-	dBi				
+	55.9				

g. POLARIZATION¹ c2/d2. ANTENNA GAIN CONTOURS DIAGRAM ATTACHED. SEE FIGURE NO.:

e/f2. ANTENNA RADIATION PATTERN DIAGRAM ATTACHED. SEE FIGURE NO.: h. ESTIMATED ANTENNA GAIN DIAGRAM VS ORBIT LONGITUDE ATTACHED SEE FIGURE NO.:

INFORMATION TO BE PROVIDED FOR THIS RECEIVING ANTENNA BEAM

2a. CLASS OF STATION <input type="text" value="ES"/>	2b. NATURE OF SERVICE <input type="text" value="OT"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	6. RECEIVING SYSTEM NOISE TEMPERATURE <input type="text" value="744"/> Kelvins PERIOD OF VALIDITY <input type="text" value="8"/> Years
2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	

1. SERVICE AREA OR SERVICE AREA DIAGRAM ATTACHED SEE FIGURE NO.:

3/fb. FREQUENCY RANGE WITHIN WHICH THE CARRIERS WILL BE LOCATED				
	Add/Mod/Sup of the freq. range	FREQUENCY	k/M/G Hz	IFRB IDENTIFICATION NUMBER for modification/suppression
FROM	<input type="text"/>	<input type="text" value="59.0"/>	<input type="text" value="G"/>	<input type="text"/>
TO	<input type="text"/>	<input type="text" value="64.0"/>	<input type="text" value="G"/>	<input type="text"/>

INFORMATION RELATED TO THE ASSOCIATED TRANSMITTING STATION(S)

EMISSIONS AND POWER CHARACTERISTICS					8. MODULATION CHARACTERISTICS ATTACHED. SEE ATTACHMENT NO. ¹
7/4a3. NECESSARY BANDWIDTH OR Fc/G2A. DESIGNATION OF EMISSION ¹	4a2/4c. TOTAL PEAK POWER ¹	4a1. MAXIMUM POWER DENSITY	4d. MINIMUM CARRIER POWER ¹	Fd/GWb. SPACE/EARTH STATION E.I.R.P. ¹	
	+/- dBW	+/- dBW/Hz	+/- dBW	+/- dBW	
90M0G7W		-84.7			

F. SPACE STATION ADD/MOD/SUP of the station

CHARACTERISTICS OF TRANSMITTING SPACE STATION FOR SPACE-TO-SPACE RELAYS

a. SPACE STATION NAME

G2c. TELECOMMAND INFORMATION¹ ATTACHED. SEE ATTACHMENT NO.:

EARTH STATION ADD/MOD/SUP of the station

DESIGNATION OF TYPICAL EARTH STATION

4b1. RADIATION PATTERN (give reference pattern or provide diagram)

4b2. ANTENNA RADIATION DIAGRAM ATTACHED SEE FIGURE NO.:

MORE EMISSIONS ON NEXT PAGE MORE ASSOC. TRANSMITTING STATIONS ON NEXT PAGE

REMARKS

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D. SATELLITE NETWORK CHARACTERISTICS IN THE SPACE - TO - EARTH DIRECTION

SATELLITE TRANSMITTING ANTENNA BEAM DETAILS

PAGE 4 OF 5

5. CHARACTERISTICS OF THE BEAM

ADD/MOD/SUP of the beam

b. TRANSMITTING BEAM DESIGNATION NOTE: For a steerable beam the third character of the beam designation shall be "R"
 OLD BEAM DESIGNATION (if changed)

ANTENNA CHARACTERISTICS

c1/d1/f1. MAXIMUM ISOTROPIC GAIN	+/-	dBi	
	+	40.7	

g. POLARIZATION¹

c2/d2. ANTENNA GAIN CONTOURS DIAGRAM ATTACHED. SEE FIGURE NO.:

e/f2. ANTENNA RADIATION PATTERN DIAGRAM ATTACHED. SEE FIGURE NO.:

h. ESTIMATED ANTENNA GAIN DIAGRAM VS ORBIT LONGITUDE ATTACHED SEE FIGURE NO.:

INFORMATION TO BE PROVIDED FOR THIS TRANSMITTING ANTENNA BEAM

2a. CLASS OF STATION <input type="text" value="EC"/>	2b. NATURE OF SERVICE <input type="text" value="OT"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	PERIOD OF VALIDITY <input type="text" value="8"/> Years
2a. CLASS OF STATION <input type="text" value="ED"/>	2b. NATURE OF SERVICE <input type="text" value="OT"/>	2a. CLASS OF STATION <input type="text"/>	2b. NATURE OF SERVICE <input type="text"/>	

1. SERVICE AREA OR SERVICE AREA DIAGRAM ATTACHED SEE FIGURE NO.:

3/Fb. FREQUENCY RANGE WITHIN WHICH THE CARRIERS WILL BE LOCATED

	Add/Mod/Sup of the freq. range	FREQUENCY	k/M/G Hz	IFRB IDENTIFICATION NUMBER for modification/suppression
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TO	<input type="text"/>	<input type="text" value="40.5"/>	<input type="text" value="G"/>	<input type="text"/>

SPACE STATION EMISSIONS AND ASSOCIATED RECEIVING STATION(S) INFORMATION

EMISSIONS AND POWER CHARACTERISTICS					8. MODULATION CHARACTERISTICS ATTACHED. SEE ATTACHMENT NO. 1
7/4a3. NECESSARY BANDWIDTH OR Fc/G2A. DESIGNATION OF EMISSION ¹	4a2/4c. TOTAL PEAK POWER ¹	4a1. MAXIMUM POWER DENSITY	4d. MINIMUM CARRIER POWER ¹	Fd/GWb. SPACE/EARTH STATION E.I.R.P. ¹	
	+/- dBW	+/- dBW/Hz	+/- dBW	+/- dBW	
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<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
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<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

F. SPACE STATION CHARACTERISTICS OF RECEIVING SPACE STATION FOR SPACE-TO-SPACE RELAYS

ADD/MOD/SUP of the station

a. SPACE STATION NAME

G3c. BEACON AND TELEMETRY INFORMATION¹ ATTACHED. SEE ATTACHMENT NO.:

EARTH STATION

ADD/MOD/SUP of the station

DESIGNATION OF TYPICAL EARTH STATION

8b1. RADIATION PATTERN (give reference pattern or provide diagram)

8a. RECEIVING SYSTEM NOISE TEMPERATURE Kelvins

8b2. ANTENNA RADIATION DIAGRAM ATTACHED SEE FIGURE NO.:

MORE EMISSIONS ON NEXT PAGE MORE ASSOC. TRANSMITTING STATIONS ON NEXT PAGE

REMARKS

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D. SATELLITE NETWORK CHARACTERISTICS IN THE SPACE - TO - EARTH DIRECTION

SATELLITE TRANSMITTING ANTENNA BEAM DETAILS

PAGE 5 OF 5

5. CHARACTERISTICS OF THE BEAM ADD/MOD/SUP of the beam

b. TRANSMITTING BEAM DESIGNATION NOTE: For a steerable beam the third character of the beam designation shall be "R"
 OLD BEAM DESIGNATION (if changed)

ANTENNA CHARACTERISTICS

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+/-	dBi				
+	55.9				
g. POLARIZATION ¹ <input type="text" value="LHCP"/>	h. ESTIMATED ANTENNA GAIN DIAGRAM VS ORBIT LONGITUDE ATTACHED SEE FIGURE NO.: <input type="text"/>				
e/f2. ANTENNA RADIATION PATTERN DIAGRAM ATTACHED. SEE FIGURE NO.: <input type="text"/>					

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TO	<input type="text"/>	<input type="text" value="64.0"/>	<input type="text" value="G"/>	<input type="text"/>

SPACE STATION EMISSIONS AND ASSOCIATED RECEIVING STATION(S) INFORMATION

EMISSIONS AND POWER CHARACTERISTICS					8. MODULATION CHARACTERISTICS ATTACHED. SEE ATTACHMENT NO. ¹
7/4a3. NECESSARY BANDWIDTH OR Fc/G2A. DESIGNATION OF EMISSION ¹	4a2/4c. TOTAL PEAK POWER ¹	4a1. MAXIMUM POWER DENSITY	4d. MINIMUM CARRIER POWER ¹	Fd/GWb. SPACE/EARTH STATION E.I.R.P. ¹	
	+/- dBW	+/- dBW/Hz	+/- dBW	+/- dBW	
90M0G7W		-84.7			

F. SPACE STATION ADD/MOD/SUP of the station
 CHARACTERISTICS OF RECEIVING SPACE STATION FOR SPACE-TO-SPACE RELAYS

a. SPACE STATION NAME

G3c. BEACON AND TELEMETRY INFORMATION¹ ATTACHED. SEE ATTACHMENT NO.:

EARTH STATION ADD/MOD/SUP of the station

DESIGNATION OF TYPICAL EARTH STATION

8b1. RADIATION PATTERN (give reference pattern or provide diagram) <input type="text"/>	8a. RECEIVING SYSTEM NOISE TEMPERATURE Kelvins
8b2. ANTENNA RADIATION DIAGRAM ATTACHED SEE FIGURE NO.: <input type="text"/>	<input type="text" value="744"/>

MORE EMISSIONS ON NEXT PAGE MORE ASSOC. TRANSMITTING STATIONS ON NEXT PAGE

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APPENDIX D

M-STAR SYSTEM

FINANCIAL DATA AND FINANCIAL CERTIFICATION



MOTOROLA

100



1995 SUMMARY ANNUAL REPORT

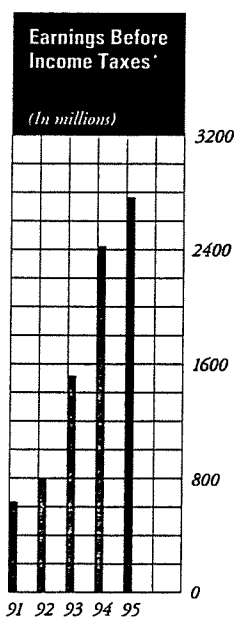
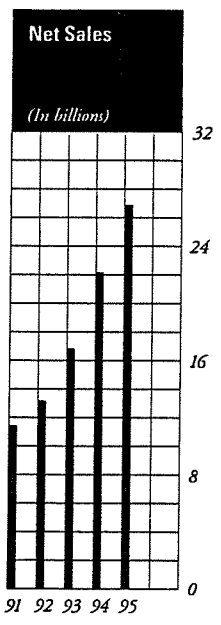
FINANCIAL HIGHLIGHTS

(In millions, except as noted)

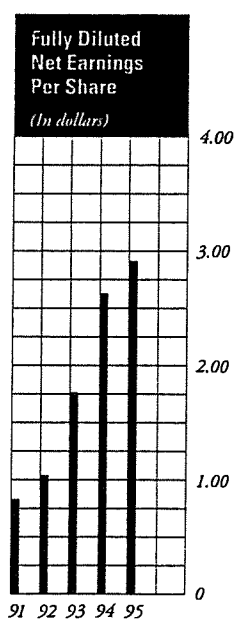
Motorola, Inc. and Consolidated Subsidiaries

Years ended December 31	1995	1994
Net sales	\$27,037	\$22,245
Earnings before income taxes	2,782	2,437
% to sales	10.3%	11.0%
Net earnings	1,781	1,560
% to sales	6.6%	7.0%
Primary net earnings per common and common equivalent share (in dollars)	2.93	2.66
Fully diluted net earnings per common and common equivalent share (in dollars)	2.93	2.65
Research and development expenditures	2,197	1,860
Fixed asset expenditures	4,225	3,322
Working capital	2,717	3,008
Current ratio	1.35	1.51
Return on average invested capital ¹	14.7%	17.5%
% of net debt to net debt plus equity ²	19.8%	12.1%
Book value per common share (in dollars)	18.68	15.47
Year-end employment (in thousands)	142	132

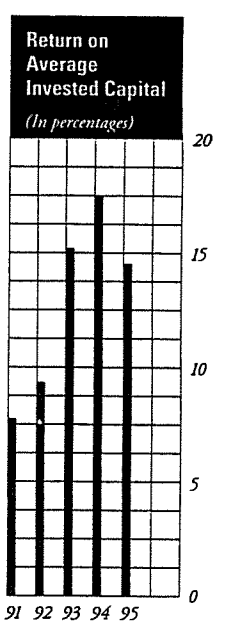
¹Average invested capital is defined as stockholders' equity plus long and short-term debt less short-term investments (includes short-term investments categorized as cash equivalents).
²Includes short-term investments categorized as cash equivalents.



*And cumulative effect of change in accounting principle



■ Before cumulative effect of change in accounting principle



■ Before cumulative effect of change in accounting principle

STATEMENTS OF CONSOLIDATED EARNINGS

(In millions, except per share amounts)	Motorola, Inc. and Consolidated Subsidiaries		
	1995	1994	1993
Years ended December 31			
Net sales	\$27,037	\$22,245	\$16,963
Costs and expenses			
Manufacturing and other costs of sales	17,545	13,760	10,351
Selling, general and administrative expenses	4,642	4,381	3,776
Depreciation expense	1,919	1,525	1,170
Interest expense, net	149	142	141
Total costs and expenses	24,255	19,808	15,438
Earnings before income taxes	2,782	2,437	1,525
Income taxes provided on earnings	1,001	877	503
Net earnings	\$ 1,781	\$ 1,560	\$ 1,022
Fully diluted net earnings per common and common equivalent share ^{1,2}	\$ 2.93	\$ 2.65	\$ 1.78
Fully diluted average common and common equivalent shares outstanding ^{1,2}	609.8	592.7	583.7

¹Primary earnings per common and common equivalent share were the same as fully diluted for all years shown, except in 1994 when they were one cent higher than fully diluted. Average primary common and common equivalent shares outstanding for 1995, 1994 and 1993 were 609.7, 591.7 and 582.6, respectively (which includes the dilutive effects of the convertible zero coupon notes and the outstanding stock options).

²Includes adjustments for the 1994 two-for-one stock split effected in the form of a 100 percent stock dividend.

STATEMENTS OF CONSOLIDATED STOCKHOLDERS' EQUITY

(In millions, except per share amounts)	Common Stock and Additional Paid-in Capital ¹			Retained Earnings		
	1995	1994	1993	1995	1994	1993
Years ended December 31						
Balances at January 1	\$3,179	\$1,875	\$1,510	\$5,917	\$4,534	\$3,634
Net earnings	-	-	-	1,781	1,560	1,022
Conversion of zero coupon notes	23	251	216	-	-	-
Stock issuance ²	-	973	-	-	-	-
Unrealized net gain (loss) on certain investments	328	(8)	-	-	-	-
Stock options exercised and other	57	88	149	-	-	-
Dividends declared (\$.40 per share in 1995, \$.31 in 1994 and \$.22 in 1993)	-	-	-	(237)	(177)	(122)
Balances at December 31	\$3,587	\$3,179	\$1,875	\$7,461	\$5,917	\$4,534

¹1994 Stock Split: An amount equal to the par value of the additional shares issued has been transferred from additional paid-in capital to common stock due to the two-for-one stock split effected in the form of a 100 percent stock dividend. All references to shares outstanding, dividends and per share amounts during 1994 and 1993 have been adjusted on a retroactive basis.

²During November 1994, the Company completed a public equity offering of 17.1 million shares of common stock.

See accompanying condensed notes to consolidated financial statements.

CONSOLIDATED BALANCE SHEETS

(In millions, except per share amounts)

Motorola, Inc. and Consolidated Subsidiaries

December 31	1995	1994
Assets		
<i>Current assets</i>		
Cash and cash equivalents	\$ 725	\$ 741
Short-term investments	350	318
Accounts receivable, less allowance for doubtful accounts (1995, \$123; 1994, \$118)	4,081	3,421
Inventories	3,528	2,670
Future income tax benefits	1,222	928
Other current assets	604	847
Total current assets	10,510	8,925
Property, plant and equipment, less accumulated depreciation (1995, \$8,110; 1994, \$6,657)	9,356	7,073
Other assets	2,935	1,538
Total assets	\$22,801	\$17,536
Liabilities and Stockholders' Equity		
<i>Current liabilities</i>		
Notes payable and current portion of long-term debt	\$ 1,605	\$ 916
Accounts payable	2,018	1,678
Accrued liabilities	4,170	3,323
Total current liabilities	7,793	5,917
Long-term debt	1,949	1,127
Deferred income taxes	968	509
Other liabilities	1,043	887
<i>Stockholders' equity</i>		
Common stock, \$3 par value Authorized shares: 1995 and 1994, 1,400 Issued and outstanding shares: 1995, 591.4; 1994, 588.0	1,774	1,764
Preferred stock, \$100 par value issuable in series Authorized shares: 0.5 (none issued)	-	-
Additional paid-in capital	1,813	1,415
Retained earnings	7,461	5,917
Total stockholders' equity	11,048	9,096
Total liabilities and stockholders' equity	\$22,801	\$17,536

See accompanying condensed notes to consolidated financial statements.

STATEMENTS OF CONSOLIDATED CASH FLOWS

<i>(In millions)</i>	<i>Motorola, Inc. and Consolidated Subsidiaries</i>		
Years ended December 31	1995	1994	1993
Operating			
Net earnings	\$ 1,781	\$ 1,560	\$ 1,022
Add (deduct) non-cash items			
Depreciation	1,919	1,525	1,170
Deferred income taxes	(55)	(177)	50
Amortization of debt discount and issue costs	12	22	26
Gain on disposition of investments in affiliated companies	(111)	(9)	(9)
Change in assets and liabilities, net of effects of acquisitions and dispositions			
Accounts receivable, net	(653)	(945)	(439)
Inventories	(856)	(806)	(539)
Other current assets	(100)	(328)	(44)
Accounts payable and accrued liabilities	1,172	1,134	927
Other assets	30	595	(95)
Other liabilities	148	(19)	245
Net cash provided by operations	3,287	2,552	2,314
Investing			
Acquisitions and advances to affiliated companies	(563)	(894)	(408)
Dispositions of investments in affiliated companies	252	23	67
Payments for property, plant and equipment	(4,225)	(3,320)	(2,187)
Other changes to property, plant and equipment, net	(11)	183	126
(Increase) decrease in short-term investments	(32)	40	(105)
Net cash used for investing activities	(4,579)	(3,968)	(2,507)
Financing			
Net increase (decrease) in commercial paper and short-term borrowings less than 90 days	686	517	(38)
Proceeds from issuance of debt	851	32	521
Repayment of debt	(74)	(190)	(74)
Issuance of common stock	49	1,061	113
Payment of dividends	(236)	(149)	(120)
Net cash provided by financing activities	1,276	1,271	402
Net increase (decrease) in cash and cash equivalents	\$ (16)	\$ (145)	\$ 209
Cash and cash equivalents, beginning of year	\$ 741	\$ 886	\$ 677
Cash and cash equivalents, end of year	\$ 725	\$ 741	\$ 886

Supplemental Cash Flow Information

<i>(In millions)</i>	<i>Motorola, Inc. and Consolidated Subsidiaries</i>		
Years ended December 31	1995	1994	1993
Non-Cash Activities			
Conversion of zero coupon notes	\$ 23	\$251	\$216
Unrealized net gain (loss) on certain investments	\$336	\$ (8)	-
Issuance of common stock for investment acquisition	\$ -	\$ -	\$ 36

See accompanying condensed notes to consolidated financial statements.

CONDENSED NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(In millions, except as noted)

Motorola, Inc. and Consolidated Subsidiaries

Industry segment information

Years ended December 31	Net Sales			Operating Profit					
	1995	1994	1993	1995		1994		1993	
General Systems Products	\$10,660	\$ 8,613	\$ 5,236	\$1,266	11.9%	\$1,214	14.1%	\$ 718	13.7%
Semiconductor Products	8,539	6,936	5,707	1,218	14.3%	996	14.4%	801	14.0%
Messaging, Information and Media Products	3,681	2,981	2,574	310	8.4%	282	9.5%	219	8.5%
Land Mobile Products	3,598	3,399	2,882	324	9.0%	311	9.1%	150	5.2%
Other Products	3,346	2,660	2,009	131	3.9%	97	3.6%	63	3.1%
Adjustments and eliminations	(2,787)	(2,344)	(1,445)	(48)	-	(29)	-	(11)	-
Industry segment totals	\$27,037	\$22,245	\$16,963	3,201	11.8%	2,871	12.9%	1,940	11.4%
General corporate expenses				(270)		(292)		(274)	
Interest expense, net				(149)		(142)		(141)	
Earnings before income taxes				\$2,782	10.3%	\$2,437	11.0%	\$1,525	9.0%

Years ended December 31	Assets			Fixed Asset Expenditures			Depreciation Expense		
	1995	1994	1993	1995	1994	1993	1995	1994	1993
General Systems Products	\$ 6,181	\$ 4,740	\$ 3,223	\$ 762	\$ 621	\$ 453	\$ 450	\$ 327	\$ 227
Semiconductor Products	7,938	5,886	4,507	2,530	1,640	1,120	909	683	529
Messaging, Information and Media Products	2,527	2,087	985	357	270	237	204	167	72
Land Mobile Products	2,097	2,232	2,673	169	217	141	155	142	225
Other Products	1,839	1,470	805	285	320	136	154	143	63
Adjustments and eliminations	(224)	(72)	(24)	-	-	-	-	-	-
Industry segment totals	20,358	16,343	12,169	4,103	3,068	2,087	1,872	1,462	1,116
General corporate	2,443	1,193	1,329	122	254	100	47	63	54
Consolidated totals	\$22,801	\$17,536	\$13,498	\$4,225	\$3,322	\$2,187	\$1,919	\$1,525	\$1,170

Geographic area information¹

Years ended December 31	Net Sales			Operating Profit					
	1995	1994	1993	1995		1994		1993	
United States	\$19,187	\$16,297	\$12,924	\$1,681	8.8%	\$1,932	11.9%	\$ 970	7.5%
Other nations	16,954	12,758	10,066	1,901	11.2%	1,292	10.1%	1,164	11.6%
Adjustments and eliminations	(9,104)	(6,810)	(6,027)	(381)	-	(353)	-	(194)	-
Geographic totals	\$27,037	\$22,245	\$16,963	3,201	11.8%	2,871	12.9%	1,940	11.4%
General corporate expenses				(270)		(292)		(274)	
Interest expense, net				(149)		(142)		(141)	
Earnings before income taxes				\$2,782	10.3%	\$2,437	11.0%	\$1,525	9.0%

December 31	Assets		
	1995	1994	1993
United States	\$12,552	\$10,750	\$ 7,731
Other nations	8,260	5,943	4,674
Adjustments and eliminations	(454)	(350)	(236)
Geographic totals	20,358	16,343	12,169
General corporate assets	2,443	1,193	1,329
Consolidated totals	\$22,801	\$17,536	\$13,498

¹As measured by the locale of the revenue-producing operations.
1994 and 1993 have been reclassified to reflect the realignment of various business units.

FIVE YEAR FINANCIAL SUMMARY

*(In millions, except per share amounts and other data)**Motorola, Inc. and Consolidated Subsidiaries*

Years ended December 31	1995	1994	1993	1992	1991
Operating Results					
Net sales	\$27,037	\$22,245	\$16,963	\$13,303	\$11,341
Manufacturing and other costs of sales	17,545	13,760	10,351	8,395	7,134
Selling, general and administrative expenses	4,642	4,381	3,776	2,951	2,579
Depreciation expense	1,919	1,525	1,170	1,000	886
Interest expense, net	149	142	141	157	129
Total costs and expenses	24,255	19,808	15,438	12,503	10,728
Earnings before income taxes and cumulative effect of change in accounting principle	2,782	2,437	1,525	800	613
Income taxes provided on earnings	1,001	877	503	224	159
Net earnings before cumulative effect of change in accounting principle	\$ 1,781	\$ 1,560	\$ 1,022	\$ 576	\$ 454
Net earnings	\$ 1,781	\$ 1,560	\$ 1,022	\$ 453	\$ 454
Net earnings before cumulative effect of change in accounting principle as a percent of sales	6.6%	7.0%	6.0%	4.3%	4.0%
Net earnings as a percent of sales	6.6%	7.0%	6.0%	3.4%	4.0%
Per Share Data (in dollars) ^{1,2}					
Fully diluted					
Net earnings before cumulative effect of change in accounting principle	\$ 2.93	\$ 2.65	\$ 1.78	\$ 1.05	\$ 0.84
Cumulative effect of change in accounting principle	—	—	—	(0.22)	—
Net earnings	\$ 2.93	\$ 2.65	\$ 1.78	\$ 0.83	\$ 0.84
Average common and common equivalent shares outstanding	609.8	592.7	583.7	567.1	558.5
Dividends declared	\$ 0.400	\$ 0.310	\$ 0.220	\$ 0.198	\$ 0.190
Balance Sheet					
Total assets	\$22,801	\$17,536	\$13,498	\$10,629	\$ 9,375
Working capital	2,717	3,008	2,324	1,883	1,424
Long-term debt	1,949	1,127	1,360	1,258	954
Total debt	3,554	2,043	1,915	1,695	1,806
Total stockholders' equity	\$11,048	\$ 9,096	\$ 6,409	\$ 5,144	\$ 4,630
Other Data					
Current ratio	1.35	1.51	1.53	1.56	1.46
Return on average invested capital before cumulative effect of change in accounting principle	14.7%	17.5%	15.3%	9.4%	7.8%
Return on average invested capital	14.7%	17.5%	15.3%	7.5%	7.8%
Return on average stockholders' equity before cumulative effect of change in accounting principle	17.7%	21.0%	17.8%	11.7%	10.2%
Return on average stockholders' equity	17.7%	21.0%	17.8%	9.4%	10.2%
Fixed asset expenditures	\$ 4,225	\$ 3,322	\$ 2,187	\$ 1,442	\$ 1,387
% to sales	15.6%	14.9%	12.9%	10.8%	12.2%
Research and development expenditures	\$ 2,197	\$ 1,860	\$ 1,521	\$ 1,306	\$ 1,133
% to sales	8.1%	8.4%	9.0%	9.8%	10.0%
Year-end employment (in thousands)	142	132	120	107	102

¹All earnings per share, dividends and outstanding shares data have been restated to reflect the 1994 and 1992 two-for-one stock splits.

²Primary earnings per common and common equivalent share were the same as fully diluted for all years shown except in 1994 and 1991 when primary earnings per share were one cent higher than fully diluted. Average primary common and common equivalent shares outstanding for 1995, 1994, 1993, 1992 and 1991 were 609.7, 591.7, 582.6, 565.6 and 555.6, respectively.

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL STATEMENTS

Motorola, Inc. and Consolidated Subsidiaries

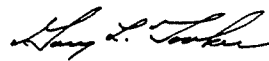
Management is responsible for the preparation, integrity and objectivity of the consolidated financial statements and other financial information presented in this report. The accompanying condensed consolidated financial statements were prepared in accordance with generally accepted accounting principles, applying certain estimates and judgments as required.

Motorola's internal controls are designed to provide reasonable assurance as to the integrity and reliability of the financial statements and to adequately safeguard, verify and maintain accountability of assets. Such controls are based on established written policies and procedures, are implemented by trained, skilled personnel with an appropriate segregation of duties and are monitored through a comprehensive internal audit program. These policies and procedures prescribe that the Company and all its employees are to maintain the highest ethical standards and that its business practices throughout the world are to be conducted in a manner which is above reproach.

KPMG Peat Marwick LLP, independent auditors, are retained to audit Motorola's financial statements. Their accompanying report is based on

audits conducted in accordance with generally accepted auditing standards, which includes the consideration of the Company's internal controls to establish a basis for reliance thereon in determining the nature, timing and extent of audit tests to be applied.

The Board of Directors exercises its responsibility for these financial statements through its Audit Committee, which consists entirely of independent non-management Board members. The Audit Committee meets periodically with the independent auditors and with the Company's internal auditors, both privately and with management present, to review accounting, auditing, internal controls and financial reporting matters.



Gary L. Tooker
Vice Chairman and
Chief Executive Officer



Carl F. Koenemann
Executive Vice President
and Chief Financial Officer

INDEPENDENT AUDITORS' REPORT

The Board of Directors and Stockholders of Motorola, Inc.:

We have audited, in accordance with generally accepted auditing standards, the consolidated balance sheets of Motorola, Inc. and consolidated subsidiaries as of December 31, 1995 and 1994, and the related statements of consolidated earnings, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 1995, appearing in the appendix to the proxy statement for the 1996 Annual Meeting of Shareholders of the Corporation (not presented herein); and in our report dated January 9, 1996, except for Note 6, which is as of February 16, 1996, also appearing in that proxy statement appendix, we expressed an unqualified opinion on those consolidated financial statements. In our

opinion, the information set forth in the accompanying condensed consolidated financial statements is fairly presented, in all material respects, in relation to the consolidated financial statements from which it has been derived.

KPMG Peat Marwick LLP

KPMG Peat Marwick LLP
Chicago, Illinois

February 16, 1996

DECLARATION OF BARY R. BERTIGER

I, Bary R. Bertiger, hereby declare under penalty of perjury that:

1. I am Corporate Vice President of Motorola, Inc.
2. The foregoing is a true and correct copy of the consolidate financial statements of Motorola, Inc. (the sole parent company of MSS Inc.) for the year ending December 31, 1995, including the report of KPMG Peat Marwick, the company's independent certified public accountants, as published in the 1995 annual report of Motorola, Inc.

A handwritten signature in cursive script, reading "Bary Bertiger", is written over a horizontal line.

Bary R. Bertiger
Vice President
Motorola, Inc.

Executed on August 26, 1996

APPENDIX E

M-STAR

LEGAL QUALIFICATIONS

LICENSEE QUALIFICATION REPORT

See reverse side for information regarding public burden statement.

INSTRUCTIONS

- A. The "Filer" of this report is defined to include: (1) An applicant, where this report is submitted in connection with applications for common carrier and satellite radio authority as required for such applications; or (2) A licensee or permittee, where this report is required by the Commission's Rules to be submitted on an annual basis.
- B. Submit an original and one copy (sign original only) to the Federal Communications Commission, Washington, DC 20554. If more than one radio service is listed in Item 6, submit an additional copy for each such additional service. If this report is being submitted in connection with an application for radio authority, attach it to that application.
- C. Do not submit a fee with this report.

<p>1. Business Name and Address (Number, Street, State and ZIP Code) of Filer's Principal Office: Motorola Satellite Systems, Inc. 2501 South Price Road Chandler, Arizona 85248-2899</p>	<p>2. (Area Code) Telephone Number: (602) 732-2267</p>
<p>4. Filer is (check one): <input type="checkbox"/> Individual <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Other (Specify):</p>	<p>3. If this report supercedes a previously filed report, specify its date:</p> <p>5. Under the laws of what State (or other jurisdiction) is the Filer organized? Delaware</p>
<p>6. List the common carrier and satellite radio services in which Filer has applied or is a current licensee or permittee: See Exhibit V</p>	

<p>7(a) Has the Filer or any party to this application had any FCC station license or permit revoked or had any application for permit, license or renewal denied by this Commission? If "YES", attach as Exhibit I a statement giving call sign and file number of license or permit revoked and relating circumstances.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>(b) Has any court finally adjudged the Filer, or any person directly or indirectly controlling the Filer, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement, or other means of unfair methods of competition? If "YES", attach as Exhibit II a statement relating the facts.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>(c) Has the Filer, or any party to this application, or any person directly or indirectly controlling the Filer ever been convicted of a felony by any state or Federal Court? If "YES", attach as Exhibit III a statement relating the facts.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p style="text-align: center;">See Exhibit III</p>
<p>(d) Is the Filer, or any person directly or indirectly controlling the Filer, presently a party in any matter referred to Items 7(b) and 7(c)? If "YES", attach as Exhibit IV a statement relating the facts.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p style="text-align: center;">See Exhibit IV</p>
<p>8. Is the Filer, directly or indirectly, through stock ownership, contract or otherwise, currently interested in the ownership or control of any other radio stations licensed by this Commission? If "YES", submit as Exhibit V the name of each such licensee and the licensee's relation to the Filer.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p style="text-align: center;">See Exhibit V</p>

If Filer is an individual (sole proprietorship) or partnership, answer the following and Item 11:

<p>9(a) Full Legal Name and Residential Address (Number, Street, State and ZIP Code) of Individual or Partners: N/A</p>	<p>(b) Is individual or each member of a partnership a citizen of the United States? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
	<p>(c) Is individual or any member of a partnership a representative of an alien or of a foreign government? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>

EXHIBIT III

In March 1988, the Government Electronics Group (GEG) of the Filer's corporate parent, Motorola, Inc., entered guilty pleas to three counts of making false statements to the U.S. Government. A penalty of \$10,000 per count was imposed. In addition, Motorola, Inc. paid approximately \$17 million to the Government in final settlement of this matter. Motorola, Inc. was not suspended or debarred from business with the U.S. Government because of these guilty pleas. At the time of Motorola's guilty pleas, Motorola, Inc. entered into an Administrative Settlement Agreement with the Defense Logistics Agency (DLA). The DLA specifically determined that the terms of the Administrative Settlement Agreement "provide adequate assurance that future dealing with Motorola, Inc. and GEG will be conducted with the high degree of integrity that the Government expects of its business partners and that suspension or debarment is not necessary at this time to protect the Government's interests." (Preamble, ¶ 7).

EXHIBIT IV

Motorola is a party in Kahn v. Emerson, et al., Civil Action No. 92 Civ. 3063 (ADS) in the U.S. District Court for the Eastern District of New York. The case includes allegations that Motorola has monopolized and attempted to monopolize the markets for AM stereo radio transmitter exciters and decoder ICs and the licensing of AM stereo radio technology. On May 26, 1995, a jury verdict was returned in Motorola's favor on all counts. A final judgment has been entered on November 27, 1995 and was affirmed by the Court of Appeals for the Federal Circuit in August 1996.

EXHIBIT V

The Filer's corporate parent, Motorola, Inc., holds numerous licenses issued by the FCC to operate facilities throughout the United States. Specifically, Motorola, Inc. holds the following authorizations:

- Numerous licenses throughout the U.S. for repeater operations and/or base mobile operations under Part 90 of the Commission's Rules.
- Numerous private multiple-address microwave licenses nationwide authorized under Part 94. The company also holds several microwave licenses to link its manufacturing plants.
- Various GMRS radio licenses authorized under Part 95.
- Developmental and experimental licenses in a number of frequency bands associated with equipment development.

Motorola Inc.'s subsidiaries include:

- EMBARC Communication Services, Inc. (a Part 22 nationwide messaging service on 931.9125 MHz).
- Motorola C&E Inc., which holds various SMR and private land mobile Part 90 licenses and applications.
- Motorola ARDIS Acquisition, Inc., and ARDIS Company, which hold licenses and applications for the conventional data-only Part 90 ARDIS network.
- Motorola Satellite Communications, Inc., which holds a license to construct, launch and operate a Big LEO MSS system (the IRIDIUM[®] System) in the 1.6 GHz MSS/RDSS band.
- Comm Inc., which has applied to construct, launch and operate a GSO satellite constellation in the 28 GHz band.
- U.S. Leo Services Inc., which has applied for a license to construct and operate a Gateway Earth station and blanket subscriber mobile earth terminals.

EXHIBIT VI

The Filer corporation is wholly-owned by Motorola, Inc., which is a publicly traded corporation. To the best of its knowledge, no individual or entity owns 10 percent or more of the Filer parent corporation's stock.

EXHIBIT VII

The names of the officers and directors of the Filer corporation are set forth below. Each may be contacted in care of the Filer's principal place of business, which is also set forth below.

Officers

<u>Officers</u>	<u>Title</u>
Durrell W. Hillis	President
Bary R. Bertiger	Vice President
Robert Bigony	Vice President
Edward Gams	Vice President
Carl F. Koenemann	Vice President
A. Peter Lawson	Secretary
Garth L. Milne	Treasurer
Ray A. Dybala	Assistant Secretary
Gerard Wimberly	Assistant Secretary

Directors

Bary R. Bertiger
Durrell W. Hillis
Carl F. Koenemann
Edward Gams

Principal Place of Business

2501 South Price Road
Chandler, Arizona 85248-2899

EXHIBIT VIII

The Filer corporation is a wholly-owned subsidiary of Motorola, Inc., which is a publicly traded corporation. The parent company is a leading manufacturer of electronic and telecommunications equipment, particularly land mobile RF equipment. See Exhibit V for a listing of telecommunications systems operated by the company. To the best of its knowledge, no individual or entity owns 10 percent or more of Motorola, Inc.'s stock. The names of the president and directors of Motorola, Inc. are set forth below. Each individual may be contacted at Motorola's corporate headquarters, 1303 East Algonquin Road, Schaumburg, Illinois 60196.

Gary L. Tooker
Director, Vice Chairman and CEO

Donald R. Jones
Director

Christopher B. Galvin
Director, President and COO

Judy C. Lewent
Director

Robert W. Galvin
Director, Chairman of the Executive
Committee

Thomas J. Murrin
Director

John F. Mitchell
Director, Vice Chairman

Nicholas Negroponte
Director

William J. Weisz
Director, Chairman of the Board

B. Kenneth West
Director

H. Laurance Fuller
Director

Walter E. Massey
Director

Anne P. Jones
Director

Samual C. Scott
Director

John E. Pepper, Jr.
Director

Dr. John A. White
Director

EXHIBIT IX

The Filer's corporate parent, Motorola, Inc., is a global corporation with operations in a number of other countries. In some of these countries, business operations are managed by corporate officers who are aliens.¹

The parent company currently has over 100 officers managing its various business activities around the world. These officers are all United States citizens, except for those listed below. None of these alien officers has any relationship with the Filer or is involved with the business operations of the Filer. None of the officers listed below holds or votes stock of the Filer, and none holds 10 percent or more of the stock of the parent corporation.

<u>NAME</u>	<u>CITIZENSHIP</u>	<u>RESPONSIBILITY</u>
Eike B. Baer	German	Corporate Vice President and General Manager, Europe/Mideast/Africa Division, LMPS
Brian H. Bedford	U.K.	Senior VP & Director of Human Resources, SPS
George A. Bennett	U.K.	Corp. VP & GM, MOS and Memory Division, European Semiconductor Group, SPS
David Burns	U.K.	Senior VP & GM, European Cellular Subscriber Division, GSS
Bertrand F. Cambou	France	Senior VP & Director, Sector Technology, SPS

¹ The Telecommunications Act of 1996 recently amended 47 U.S.C. § 310(b) to permit all of a licensee's officers and/or directors to be aliens. Accordingly, Motorola is supplying this information solely to comply with the Form 430 informational requirements.

<u>NAME</u>	<u>CITIZENSHIP</u>	<u>RESPONSIBILITY</u>
Brian O. Hilton	Canada	Corp. VP & Director, World Marketing Geography Distribution, SPS
F. David Hughes	U.K.	Corp. VP & GM, European Market and GSM Products Division, General Systems Sector
Pertti A. Johansson	Finnish	Senior Vice President and General Manager International Cellular Infrastructure Division, GSS
Takashi Kitagawa	Japan	Corporate Vice President and General Manager, Paging Products Division, Japan Group
Motohiro Kitajima	Japan	Corp. VP & GM, Semiconductor Products Division, Nippon Motorola Ltd.
Isamu Kuru	Japan	Corp. VP & President Nippon Motorola Ltd.
Pin Yong Lai	Malaysia	Corporate Vice President and Executive Director of Greater China
Ian S. McCrae	U.K.	Corp. VP & Deputy GM, Semiconductor Products Division, Nippon Motorola Ltd.
Parviz Mokhtari	U.K.	Corp. VP & Regional Director for South America
Fred A. Shiapak	Canada	Senior VP & GM European Semiconductor Group, SPS

David J. Small U.K. Corporate Vice President
and Director Corporate
Finance, Europe/Mideast/
Africa

Chung-Ding Tam U.K. Sr. VP & GM, Asia/Pacific
Semiconductor Products
Division, SPS

Barry Waite U.K. Senior VP & GM,
Microprocessor and
Memory Technologies
Group, SPS

Brian K. Wilkie U.K. Corporate Vice President
and General Manager,
Advanced Microcontroller
Division, SPS

APPENDIX F

**M-STAR SYSTEM
INDIVIDUAL SATELLITE APPLICATIONS**

APPENDIX F: INDIVIDUAL SATELLITE APPLICATION

This section contains MSS Inc.'s application describing one of its individual LEO Satellites that is identical to each of the 72 in-orbit satellites in the constellation identified in MSS Inc.'s Application for the M-Star Non-Geostationary System. This Application is presented as a "blanket" request for licensing the entire constellation per MSS Inc.'s request for Waiver of Section 25.114(a) contained in Section XI of the instant Application.

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of the Application of

MOTOROLA SATELLITE SYSTEMS, INC.

**For Authority to Construct, Launch and
Operate a Non-Geostationary Satellite
System Operating in the 37.5 to 40.5 GHz
and 47.2 to 50.2 GHz bands**

File No. _____

APPLICATION

Pursuant to Sections 308, 309 and 319 of the Communications Act of 1934, as amended, MSS Inc. hereby applies for authority to construct, launch and operate an international non-geostationary communications satellite system that will function in the 37.5 to 40.5 GHz and 47.2 to 50.2 GHz bands. Information contained in MSS Inc.'s Application for Authority to Construct, Launch and Operate a Non-Geostationary Satellite System, to which this application is attached, is incorporated herein by reference.

A. REQUIRED INFORMATION

1. Applicant

Motorola Satellite Systems, Inc.
Attn.: Mr. Durrell W. Hillis, President
2501 South Price Road
Chandler, AZ 85248-2899
(602) 732-2267

2. Correspondence

Correspondence and inquiries concerning this application should be directed to:

Michael D. Kennedy
Vice President & Director,
Regulatory Relations
Barry Lambergerman, Mgr.
Satellite Regulatory Affairs
Motorola Inc.
1350 I Street, N.W., Suite 400
Washington, D.C. 20005
(202) 371-6900

Philip L. Malet
Pantelis Michalopoulos
Brent Weingardt
Steptoe & Johnson LLP
1330 Connecticut Ave., N.W.
Washington, D.C. 20036
(202) 429-3000

3. Frequencies, Polarization, and Emission Parameters

See Section IV of the MSS Inc. System Application.

4. Orbital Location

MSS Inc. requests that the Commission assign the non-geostationary orbits and frequencies identified in the accompanying System Application at Section IV.

5. Predicted Space Station Coverage Contours For Each Antenna Beam

Coverage and contour data are provided in the MSS Inc. System Application at Section IV and Appendix A.

6. Physical Characteristics Of The Space Station

A description of the spacecraft to be used as part of the M-Star System is provided in the MSS Inc. System application at Section IV. This information includes the following details: (1) the accuracy with which orbital parameters will be maintained, and the accuracy of antenna direction; (2) the estimated lifetime of the spacecraft; (3) a description of the spacecraft's attitude stabilization and station-keeping systems; and (4) a description of the electrical energy system.

7. Emission Limitations

The degree to which spurious emissions are attenuated below the mean power output of the transponder under actual electrical conditions of proposed operation is discussed in the MSS Inc. System Application at Section IV.

8. Schedule For Construction, Launch and Placement Into Service

A schedule for construction, launch and placing the spacecraft into operation is provided in the MSS Inc. System Application at Section IX.

B. Section 304 Waiver

In accordance with Section 304 of the Communications Act of 1934, as amended, 47 U.S.C. § 304, MSS Inc. hereby 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.

C. Additional Satellite System Information

The MSS Inc. System Application sets forth the public interest considerations, system and services description and the financial, legal, and technical qualifications of Motorola and other information pertinent to this application, and is incorporated herein by reference.

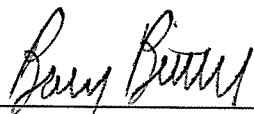
CERTIFICATION

The undersigned certifies individually and for MSS Inc. that all of the statements made in this Application are true, complete and accurate to the best of its information, belief and knowledge, and are made in good faith.

MSS Inc. requests that the Commission grant this Application.

Respectfully submitted,

Motorola Satellite Systems, Inc.

By: 

Bary R. Bertiger
Vice President

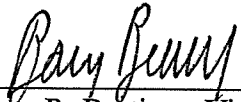
September 3, 1996

ANTI-DRUG ABUSE ACT CERTIFICATION

Pursuant to Section 1.2002 of the Commission's rules, 47 C.F.R. Section 1.2002 (1994), MSS, Inc. certifies that neither the Applicant nor any of its shareholders, nor any of its officers or directors, nor any party to this application is subject to a denial of Federal benefits pursuant to authority granted in Section 5301 of the Anti-Drug Abuse Act of 1988.

Motorola Satellite Systems, Inc.

By:



Gary R. Bertiger, Vice President

Dated: September 3, 1996

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

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 and belief.

By:



John T. Knudsen
Manager, Spectrum And Standards
Advanced Systems Division
Space and Systems Technology Group
Motorola, Inc.

Dated: September 3, 1996

APPENDIX G

**M-STAR SYSTEM
CROSS REFERENCE**

Appendix G: CROSS REFERENCE

This section is a cross reference to the requirements of 47 C.F.R. § 25.114, 47 C.F.R. § 25.140 and Appendix B of the Commission's Order for Filing of Applications for New Space Stations in the Domestic Fixed-Satellite Service, 93 F.C.C. 2d 1265 (1983). The cross reference is intended for reference purposes only and is not intended to be a comprehensive index to the entire Application.

CROSS REFERENCE TO SECTION 25.114(c)

<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
§ 25.114(c)(1)	Name and Address of Applicant	I.B.
§ 25.114(c)(2)	Name and Address of Persons to be Contacted	I.B.
§ 25.114(c)(3)	Type of Authorization Requested	I.B.
§ 25.114(c)(4)	General Description of Overall System Facilities, Operations & Services	I, IV.A.
§ 25.114(c)(5)	Radio Frequencies and Polarization Plan	IV.D.
§ 25.114(c)(6)	Orbital Locations	I.V.B.
§ 25.114(c)(6)	Factors Supporting Orbital Assignments	IV.B.
§ 25.114(c)(6)	Range of Adequate Orbital Locations	IV.B.
§ 25.114(c)(6)	Basis For Determining Range of Orbital Locations	IV.B.
§ 25.114(c)(6)	Explanation of Factors Limiting Orbital Arc	IV.B.
§ 25.114(c)(7)	Predicted Space Station Antenna Gain Contours	IV.D.

<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
§ 25.114(c)(8)	Number and Geographic Distribution of Earth Stations	IV.E.
§ 25.114(c)(9)	Services Description	III
§ 25.114(c)(9)	Demand for Services	III.D
§ 25.114(c)(9)	Areas and Entities to be Served	III
§ 25.114(c)(9)	Transmission Characteristics	Appendix A
§ 25.114(c)(9)	Link Noise Budget	Appendix A
§ 25.114(c)(9)	Earth Station Parameters	IV.E.
§ 25.114(c)(9)	Link Performance Analysis	IV.D., Appendix A.
§ 25.114(c)(9)	Estimate of Transponder Capacity	IV.D.8.
§ 25.114(c)(10)	Accuracy of Orbital Inclination, Antenna Axis Attitude, Longitudinal Draft	IV.B., IV.D.
§ 25.114(c)(11)	Power Flux Density Levels	IV.D.
§ 25.114(c)(12)	Launch Vehicles and Launch Arrangements	IV.G.
§ 25.114(c)(13)	TT&C Arrangements	IV.D.
§ 25.114(c)(14)	Space Station Characteristics	IV.D.
§ 25.114(c)(14)	Weight	IV.C., Table IV-2
§ 25.114(c)(14)	Dimensions of Spacecraft	IV.C., Table IV-2
§ 25.114(c)(14)	Detailed Mass	IV.C., Table IV-2
§ 25.114(c)(14)	Power Budgets	IV.D., Appendix A
§ 25.114(c)(14)	Estimated Operational Lifetime & Reliability	IV.D., Table IV-2,
§ 25.114(c)(15)	Capability to Provide Service to Alaska & Hawaii	III.D.2., X.B.

<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
§ 25.114(c)(16)	Historical Use of System (Only for Additional or Replacement Satellites)	N/A
§ 25.114(c)(17)	Schedule of Investment and Operating Cost	IX
§ 25.114(c)(18)	Financial Qualifications	IX.D., Appendix D
§ 25.114(c)(19)	Legal Qualifications	VIII, Appendix E
§ 25.114(c)(20)	Statement of Carrier Status	III.F.
§ 25.114(c)(21)	Construction Schedule	IX.A.
§ 25.114(c)(22)	Public Interest Considerations	II
§ 25.114(c)(23)	Include Information Specified in § 25.140	See cross reference for § 25.140
§ 25.114(c)(24)	Reserved	
§ 25.114(c)(25)	RDSS Requirements	N/A
§ 25.114(c)(26)	MSS Requirements	N/A

CROSS REFERENCE TO SECTION 25.140

<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
§ 25.140(a)	Compliance with Appendix B of Commission's 1983 Processing Order	See cross reference for Appendix B
§ 25.140(b)	Legal, Financial & Technical Qualifications	VIII, IX, X, Appendix D, Appendix E
§ 25.140(b)(1)	Information Required in § 25.114	See cross reference for § 25.114
§ 25.140(b)(2)	Financial Qualifications	IX
§ 25.140(b)(3)	Interference Analysis	V, Appendix B
§ 25.140(c)	Detailed Statement of Investment & Operating Costs	IX
§ 25.140(c)(1)	Estimated Costs of Construction And/Or Launch	IX
§ 25.140(c)(2)	Estimated First Year Operating Expenses	IX
§ 25.140(d)	Demonstration of Current Financial Ability to Meet Costs	IX, Appendix D
§ 25.140(d)(1)	Balance Sheet for Latest Fiscal Year	Appendix D
§ 25.140(d)(2)	Loan or Credit Arrangement Information	N/A
§ 25.140(e)	Loan or Credit Arrangement Providing For Security Interest	N/A
§ 25.140(f)	Orbital Location Limitation	N/A
§ 25.140(g)	Additional Orbital Position	N/A
§ 25.140(h)	Multiple Applications Ready for Grant	N/A

CROSS REFERENCE TO APPENDIX B

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II.B.	Name and Address of Persons to be Contacted	I.B.
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<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
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<u>RULE SECTION</u>	<u>REQUIREMENT</u>	<u>APPLICATION SECTION</u>
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