Table 8
CDMA Handheld Voice Terminal Link Budget

	FORWARD	RETURN
Data Rate, bps	4800	4800
Chip Rate, Mcps	1.2288	1.2288
ON Channels in Chip Bandwidth	40	20
Bits/Symbol	1	2
UPLINK Frequency, GHz	13	1.9
E.S. EIRP, dBW	36.8	-1
Path Loss, dB	-206.7	-190.0
Sat EOC G/T, dB/K	0	14.5
Interference Allowance, dB	0.5	0.5
C/No, dB-Hz	58.2	51.6
Satellite Gain, dB	160	162
Self Noise C/Io, dBHz	X	47.9
Intermod C/I, dB	22	26
C/IMo, dB-Hz	58.8	62.8
Reuse Isolation, dB	0	3
Frequency Reuse C/Io, dB	44.9	47.9
Satellite C/(No+Io), dBHz	44.5	44.0
DOWNLINK Frequency, GHz	2.1	11
Sat. EOC EIRP, dBW	33.8	-2
Path Loss, dB	-190.8	-205.2
E.S. G/T, dB/K	-24	38
Interference Allowance, dB	0.8	0.5
C/No, dB-Hz	46.8	58.9
Link C/(Io+No), dB	42.5	43.8
Required C/No, dB-Hz	41.3	41.3
Uplink Margin, dB	1.2	2.5
Downlink Margin, dB	2.6	11.2

Table 9
CDMA Mobile Voice Terminal Link Budget

	FORWARD	RETURN
Data Rate, bps	4800	4800
Chip Rate, Mcps	1.2288	1.2288
ON Channels in Chip Bandwidth	40	20
Bits/Symbol	1	2
UPLINK Frequency, GHz	13	1.9
E.S. EIRP, dBW	36.8	-1
Path Loss, dB	-206.7	-190.0
Sat EOC G/T, dB/K	0	14.5
Interference Allowance, dB	0.5	0.5
C/No, dB-Hz	58.2	51.6
Satellite Gain, Db	160	162
Self Noise C/Io, dBHz	X	47.9
Intermod C/I, dB	22	26
C/IMo, dB-Hz	58.8	62.8
Reuse Isolation, dB	0	3
Frequency Reuse C/Io, dB	44.9	47.9
Satellite C/(No+Io), dBHz	44.5	44.0
DOWNLINK Frequency, GHz	2.1	11
Sat. EOC EIRP, dBW	33.8	-2
Path Loss, dB	-190.8	-205.2
E.S. G/T, dB/K	-20	38
Interference Allowance, dB	0.8	0.5
C/No, dB-Hz	50.8	58.9
Link C/(Io+No), dB	43.6	43.8
Required C/No, dB-Hz	41.3	41.3
Uplink Margin, dB	2.3	2.5
Downlink Margin, dB	6.6	11.2

V. System Capacity And Spectrum Requirements

A. System Capacity

System capacity is a complex function of the types and mixtures of transmissions, satellite power, number and discrimination properties of satellite antenna beams and available spectrum. There also is a difference between theoretical capacity and practical capacity, the latter taking into account such factors as satellite filtering, routing efficiency and traffic distribution among beams. Given these complexities, capacity expressed as a single number has limited value.

It is expected that the bulk of usage for this system will be vehicular telephone service so that approximate power limited capacities will be illustrated for this service. The total usable power in the spacecraft is 68.7 dBW or 7.4E06 watts. From Table 5 the SCPC carrier EIRP is 34.5 dBW or 2,818 watts. The voice activation factor is 0.4, making the average power per carrier 1127 watts. The theoretical power limited capacity is therefore 7.4E06/1127 = 6577 SCPC channels.

From Table 9, the EIRP per channel for CDMA is 33.8 dBW or 2400 watts. With a voice activity factor of 0.4, the theoretical power limited capacity is 7708 CDMA channels.

B. S-band Spectrum Requirements

The total theoretical bandwidth required for SCPC is the total number of channels multiplied by the channel spacing. The total required bandwidth is 6577 x 8 kHz = 52.62 MHz. The amount of spectrum required depends on the frequency reuse factor. The maximum reuse factor occurs when all the beams carry the same amount of traffic and the cell reuse pattern is minimum. The PCSAT satellite has 23 beams and divides spectrum

among groups of 3 cells[5] yielding a frequency reuse factor of about 7:1. Therefore the minimum spectrum requirement is about 7.5 MHz. However, traffic will not be uniformly distributed among the beams. Some beams and beam clusters will have substantially more traffic than others, causing the overall frequency reuse factor to be substantially less than the maximum. PCSAT studies indicate that the actual reuse factor is likely to be in the range of 3:1 to 4:1. Thus, the spectrum required in the cell cluster with the most traffic will be in the range of 13 to 17 MHz.

The spectrum required if only CDMA were used is estimated in a similar fashion. The number of channels per 1.25 MHz listed in Table 9 is 40 without voice activation. With a voice activation factor of 0.4, the number is 100 per 1.25 MHz. The total bandwidth required for full power utilization is 1.25 MHz x 7708 channels/100 or 96 MHz. Assuming uniform traffic distributions, the spectrum required would be the bandwidth divided by the number of beams or 96/23 = 4.2 MHz. However, traffic will not be uniform and some beam clusters will saturate before others, causing the other beams to be underutilized. The effective reuse factor will be much less than 23, likely as low as 6 or 7. This suggests that at least 15 MHz of spectrum in each direction will be required to reach full satellite power utilization.

C. Ku-band Spectrum Requirements

The amount of feederlink spectrum required is a function of the total capacity of the system, the granularity of the fixed and tunable filter bandwidths, the manner in which the

---

5/ Traditionally a 7 cell pattern is assumed for SCPC systems. However, the use of robust modulation, FEC coding, channel interleaving and power control will control the interference to a level permitting the implementation of a 3 cell pattern.

capacity of the system is distributed among the beams of the satellite and the constraints placed on the usage of the spectrum because of sharing with terrestrial systems. The theoretical minimum amount of feederlink spectrum needed is that required to satisfy the total capacity without frequency reuse.

Other factors affect the ability of the system to distribute spectrum efficiently among the beams in a sharing environment. First, guard bands are required between filters in order to isolate them sufficiently from one another. Secondly, the tunable filter bandwidths may not perfectly match the actual signal bandwidths carried, causing some bandwidth to be inaccessible.

The factor that may bring the most granularity to the distribution of the spectrum is the constraints imposed by sharing with terrestrial services. If only a small portion of the bandwidth is useable because of the loading that is placed on the satellite by the fixed services or the protection zones that are drawn around the fixed receivers, then additional amounts of feederlink spectrum may be required.

The total minimum bandwidth requirements are 56 MHz for SCPC and 96 MHz for CDMA. Assuming a filter guard band and routing inefficiency of 20% and a fixed service blockage inefficiency of 25%, the required Ku-band spectrum will be about 56 (1.20) (1.25) = 84 MHz for SCPC and 96 (1.2) (1.25) = 144 MHz for CDMA. In order to accommodate a mixture of services and to provide flexibility in working in a shared environment, 150 MHz of Ku-band spectrum is requested.

VI. Compatibility With Other Systems and Multiple Entry

A. Terrestrial Systems

WARC-92 allocated 80 MHz of spectrum in the 1970-2010/2160-2200 MHz bands for use by the MSS in Region 2. If the 1970-1990/2160-2180 MHz bands are implemented in the United States, the MSS would become co-primary with the existing services that are currently operating in the bands. There are a number of interference cases that need to be considered to determine the sharing possibilities between the two services. The goal would be to have each service operate without constraints. However, from a practical point of view, operating a mobile earth station transmitter near a microwave receiver or vice versa will cause unacceptable levels of interference to the receiver. If the number of times this happens is infrequent and the durations of these bursts of interference are small, then the interference caused to the other service may be tolerable. If not, then constraints will need to be placed on the operations of one or both systems. In the United States, a number of studies have been conducted recently to examine the effects that one service would have on the operation of the other. The ITU Radiocommunication Sector has organized a task group to examine how the incumbent services in the 1 to 3 GHz band will share with the new WARC-92 MSS allocations. The interference cases that need to be examined include the interference caused by (1) MSS mobile earth station transmitters into terrestrial microwave receivers; (2) MSS satellite transmissions into terrestrial microwave receivers; (3) terrestrial microwave transmitters into MSS mobile earth station receivers; and (4) terrestrial microwave transmitters into MSS satellite receivers.

1. MSS Mobile Earth Station Transmitters into Terrestrial Microwave Receivers

Within the MSS there will be numerous classes of terminals that will be operating within a range of EIRP values. Handheld terminals will operate at power levels that are less than a watt; others will have an EIRP as high as 12.5 DbW. The effect that these transmitters have on the reception of the terrestrial transmissions will be a function of the distance of the MSS terminal from the terrestrial receiver, the directional gain of the microwave receive antenna towards the MSS transmitter and the amount of offset (if any) between the frequencies used by both stations. In the U.S., the 1970-1990 MHz band is used by the Private Operational Fixed Services. These stations are required to use antennas with 3 beamwidths of 5°. This performance can be achieved in the band using a 7 foot parabolic antenna, which would have a peak gain of approximately 30 dBi. Since Private Operational Fixed Systems are usually one-hop FM systems, assume that the victim receiver can accept 20 picowatts of interference. If a one watt MSS handheld terminal with an omnidirectional antenna is operating in the vicinity of a co-channel receiver, it would need to have a separation distance of approximately 78 miles from the receiver, if the mobile terminal were in the mainbeam of the receiver and assuming a flat earth free space loss model. Assuming terrain blockage in the case of a land mobile unit, the separation distance to the receiver could probably be reduced to 15 miles in the mainbeam, and something less in the sidelobe area of the antenna pattern. If there were multiple interferers, the separation distance would need to be increased. One approach to sharing would be for the MSS to avoid the use of the frequency through a process of frequency assignment by location. The protection zone coordinated for the microwave receiver will be a function of the amount of

interference that the system can tolerate and the type of propagation path that could exist between the mobile and the microwave receiver. For instance, the propagation path between an aeronautical terminal and the receiver probably will have no terrain shielding, so that the protection radius could be computed using a free space loss equation. In contrast, a land mobile terminal could probably operate closer to the site, since it is likely that some type of terrain shielding would scatter or block the signal before it is received. Since the noise bandwidth of the receiver for some of these systems is 2 MHz, there should be frequencies available outside the noise bandwidth, as long as the rest of the frequencies in the band are within the coordination radius of the land mobile terminal and are not being used by other terrestrial systems. This protection area approach may be impractical to implement in some areas of the country because of microwave congestion, but this requires further study. In congested areas, there would need to be a plan which would allow the existing microwave systems to migrate to another portion of the band to free up some spectrum for the initial MSS operations or have them migrate to different, higher frequency bands.

2. MSS Satellite Transmissions into Terrestrial Microwave Receivers

MSS satellite transmissions in the new bands would fall into bands that are domestically allocated to the Multipoint Distribution Service (2160-2162 MHz); Common Carrier Microwave systems (2162-2180 MHz) and Private Operational Microwave systems (2180-2190 MHz). On multi-hop microwave systems, the concern is the cumulative interference that is present at the end of the link due to the successive reception of interference energy received on each hop. The power flux density limits that have been developed use a reference 50-hop microwave system without regenerative repeaters. In this model, the end-to-end link will tolerate 1000 picowatts of interference, which allows for 20 picowatts of

interference to be absorbed on a link. It is unclear whether the 20 picowatt limit on interference in an individual link is an appropriate protection criterion for a single hop system that is not connected to the PSTN, as would be the case with some of the single hop Operational Fixed and MDS systems.

A study that was recently summarized as an input document to Study Group 8D of the ITU Radiocommunication Sector concluded that a large percentage of terrestrial microwave systems are likely to receive more than the previously established permissible levels of interference in areas served by co-channel geostationary MSS satellites that are not subject to PFD constraints. (It should be noted that these conclusions are based on a computer program that modeled a terrestrial microwave standard link that consists of a 50-hop system.) This problem will exist for U.S. terrestrial systems after the year 2005, whether or not the FCC implements the proposed WARC-92 MSS allocations, because by that time (if not before) the MSS allocation will be available internationally. A sharing approach that is based on the coordination of frequency assignments between the services using PFD trigger levels is appropriate since the level of acceptable interference is dependent upon the characteristics of the particular MSS and terrestrial microwave systems. Stringent PFD constraints are likely to eliminate the possibility of implementing a practical MSS system. CDMA and narrowband SCPC systems require the same level of PFD for the same number of channels per MHz. The effect is that uplink and downlink services rules must avoid setting criteria that would preclude providers of the satellite component of the PCS from using different multiple access schemes on the uplinks and the downlinks of the service links.

The MSS consists of various alternative deployments of geostationary satellite systems including a system serving CONUS, while the other systems serve other parts of the world. The reason for including the other systems was to include the interference effects of reuse in

other parts of the world. It is important in the domestic case that the terrestrial systems that share the band with the MSS be used so that unreasonable restraints in the form of stringent PFD levels are not imposed on the MSS. Some microwave systems can accept greater levels of interference than those which have been studied by the Radiocommunication Sector Study Group 9.

3. Terrestrial Microwave Transmitters into MSS Mobile Earth Station Receivers

Mobile Satellite Service terminals on land are vulnerable to interference from terrestrial microwave transmitters. However, MSS terminals can be moved to reduce or eliminate the interference. Because of their mobility, it is hard to conceive how any protection criteria can be established for the mobile terminal domestically other than in the form of EIRP limits on the terrestrial microwave systems. If an MSS system is sharing a band with terrestrial microwave systems that are operating in an adjacent country, the administration's international boundary becomes the protection zone for the MSS in an international coordination. The international boundary is a definable area of operation that is used in MSS coordination to develop ways for the different services to share the band. Domestically, the different services are trying to share the bands over the same geographic area so that a specific area of operation cannot be defined except in locations where fixed MSS terminals are installed.

One option is to consider MSS frequency assignment by location to avoid the use of the active terrestrial station frequencies in the area. This approach would require the mobile terminal to measure or scan the band to determine which frequencies are being used in the area and send this information back to the NCC before making a frequency assignment. The

NCC can use this information to assign a channel from the pool of frequencies that are not in use in the area.

4. Terrestrial Microwave Transmitters into MSS Satellite Receivers

In the uplink bands, the transmissions of terrestrial microwave stations can substantially raise the noise floor of the satellite receiver. The cumulative effects of the co-coverage and the non-co-coverage microwave transmissions need to be taken into account to assess the problem. All transmitters in the United States that are in the field-of-view of the satellite and providing domestic service will affect its operation. In addition, foreign transmitters that are on the horizon of the satellite coverage could radiate the full EIRP on a direct line-of-sight path to a geostationary satellite.

In a study that was recently summarized as an input document to Study Group 8D of the ITU Radiocommunication Sector, it was found that for typical radio relay station emission bandwidths, the EIRP and antenna input power limits that would protect MSS uplinks in the 1-3 GHz range are much lower than those in ITU Radio Regulation Article 27. Additionally, a microwave transmitter would need to be pointed at least 5° away from the geostationary satellite to substantially reduce the potential level of interference, since the mainbeam 3 dB beamwidths are approximately 5°. If this criterion is met, then the level of potential interference is a function of the antenna input power, which would need to be limited if co-frequency, co-coverage sharing of the spectrum is to become a reality.

In the Radiocommunication Sector there is some concern that the cumulative terrestrial interference that results from the transmissions of low power handhelds operating in the band could adversely overload the satellite receiver. Specifically it states:

> Studies have indicated that the high-density of personal stations of the FPLMTS terrestrial component could cause unacceptable interference to geostationary satellite orbit (GSO) mobile satellite reception in the shared uplink bands viz. 1980-2010 MHz (1970-2010 MHz in Region 2). The power flux density from a single metropolitan area would be sufficient to cause such unacceptable interference - even a 1° satellite beam would intercept multiple metropolitan areas. These studies were confirmed by similar studies on potential sharing with the scientific space services at 2 GHz. Note that, although these studies refer to the GSO, this issue also applies in principle to all orbits. Given the potential difficulties, it is preferable that the terrestrial component of FPLMTS should not use the MSS bands until the traffic requirement of the terrestrial and the satellite components are better defined.

This guidance should be followed in the U.S. to protect the investment that is made to develop the satellite component of PCS. An overload of the satellite receiver would render the communications package on the satellite useless.

5. Observations

Constraints may be needed on both the MSS and the incumbent terrestrial microwave systems for the two services to share the same frequency bands in the same geographic areas. The MSS is likely to bear a greater share of the burden since there are incumbent systems that are operating in the band, its terminals are not stationary and its satellite transmit antenna patterns cover wide areas that would include numerous independent terrestrial microwave systems. To protect microwave receivers, the constraints on the MSS may include PFD restrictions on the satellite transmissions or protection zones established around registered receivers. For the terrestrial microwave systems, input power restrictions to the antenna and pointing restrictions are required to permit the MSS to operate in the band. Also, the FCC will need to devise a spectrum plan to prevent the new terrestrial wireless technologies from operating in the part of the band that is used by the MSS uplinks to protect

the satellite receivers. Systems more efficiently use spectrum when they are allowed to operate unconstrained. The FCC has established a process to migrate the incumbent microwave systems to higher frequencies. To promote the MSS, the FCC should set a definite timetable for a transition when the MSS portion of these allocations will be completely vacated. In the initial year of operation, the MSS will not need all the available spectrum. Demand for spectrum will quickly accelerate, however, with the introduction of new domestic and global MSS systems. Pressure is building to accelerate the date of the WARC-92 global MSS allocations from the year 2005 to the year 2000. At that time, U.S. access to the spectrum will become critical for U.S. MSS systems.

B. Multiple Entry

PCSAT's flexible design approach allows the entry of other satellite systems into the bands. The satellite system will be designed to operate over the 1970-1990/2160-2180 MHz bands to maintain flexibility in coordinating its operational spectrum. At this time, it is difficult to forecast the number of systems that will attempt to operate in the band. As in the current L-band, the 2 GHz band will have both international and regional systems providing the satellite component of the FPLMTS. The spectrum that is available to a domestic satellite system will be affected by other satellite systems that are operating domestically and in the vicinity of the United States.

The PCSAT satellite system will be designed using a frequency translating satellite that can support many different multiple access techniques, such as CDMA and FDMA, and a flexible channelization plan. By building in this feature, it allows the system to use carriers that operate in and around the interfering carriers of other satellites and terrestrial systems that are operating in the band. The FCC's NPRM on the RDSS band has endorsed an

interference sharing principle that would allow multiple CDMA systems to share the same bandwidth. PCSAT is willing to use either approach to accommodate other systems that are seeking access to the band.

PCSAT's satellite system will be able to assign S-band spectrum flexibly on a beam-by-beam basis to further enhance its capability to coordinate spectrum with other systems that are operating in the band. The filtering scheme will allow the assignment of bandwidth to a beam in increments which can be selected from any part of the S-band spectrum. This will allow the system operator to maximize the use of the available spectrum among the beams of the system and the internal reuse of the spectrum within the system, given the limitations in the amount of available feederlink bandwidth.

VII. Schedules and Program Milestones

A detailed schedule and program milestones for the implementation of the PCSAT MSS system are shown in Table 10 below:

Table 10

Time	Milestones
T	Award of license
T + 3 months	Issue spacecraft RFPs
T + 7 months	Select spacecraft contractor
T + 9 months	Execute spacecraft contracts
T + 9 months	Begin spacecraft construction
T + 36 months	Financing completed
T + 39 months	Construction of first spacecraft (PCSAT-1) completed
T + 42 months	First spacecraft (PCSAT-1) launched
T + 44 months	First spacecraft (PCSAT-1) in service
T + 45 months	Construction of second spacecraft (PCSAT-2) completed
T + 47 months	Second spacecraft (PCSAT-2) launched
T + 49 months	Second spacecraft (PCSAT-2) in service

VIII. Legal Qualifications

PCSAT is a Delaware corporation that is wholly-owned by American Mobile Satellite Corporation. American Mobile Satellite Corporation is a well-known leader in MSS technologies and the parent corporation of AMSC Subsidiary Corporation, which is authorized to build and operate an MSS-AMS(R)S system in the United States.

The Applicant's legal qualifications are demonstrated in FCC Form 430, "Common Carrier and Satellite Radio Licensee Qualification Report," attached to this application as Attachment 1.

IX. Financial Plan

This section describes the projections of costs and revenues associated with the construction and operations of PCSAT's proposed system. The following analysis demonstrates that PCSAT's proposed system is economically viable.

A. Satellite System Funding Requirements

The total projected cost of the proposed system is $872 million. PCSAT's final costs may change depending on general economic conditions relating to inflation and production/timing schedules. Based on current estimates, the major cost components adjusted for inflation are:

Segment	Cost, $M
Space segment	674
Ground Segment	76
Pre-operational/Operational/ General and Administrative	122

	872

The space segment includes two satellites, two launches and their associated launch services and the cost of launch insurance. Research and development costs are included in the cost of the satellites.

Estimated ground segment costs are related primarily to the gateway earth station and research and development of the consumer receiver equipment. The gateway facilities provide all network and satellite control and monitoring functions, as well as certain administrative and billing functions.

Pre-operational and General and Administrative costs include staffing in advance of start of service, pre-operational in-orbit tests, and administrative costs during the construction period. Operational expenses include gateway earth station operations and maintenance costs.

B. Total System Costs

Tables 11 and 12 show projected total annual costs for construction and operation of the first-generation satellite system. Depreciation is computed on a 10-year basis for the space segment and a 7-year basis for the ground segment. Five percent annual inflation is included in the projections.

The estimates of launch costs are based on recently quoted rates, as adjusted for inflation. The costs of launch insurance are estimated on the basis of current insurance industry practices. Satellite costs are based on estimates from potential manufacturers.

Table 11 **Schedule of Estimated Investment Costs ($Millions)**

	Years before Launch					
	-3	**-2**	**-1**	**0**	**+1**	**Total**
Satellites	91	104	169	50	40	454
Launch Vehicles	0	25	50	50	0	125
Launch Insurance	0	0	0	95	0	95
Ground Segment	3	16	28	10	19	76
Pre-operating G&A	8	12	21	37	44	122
	--	---	---	----	---	----
TOTAL	102	157	268	242	103	872

Table 12 **Schedule of Estimated Operating Costs ($Millions)**

	Year after Launch									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Depreciation	81	81	89	93	95	95	95	84	81	77
System Operating & Maintenance	20	39	55	75	69	95	96	98	99	100
Other Operating Costs	58	88	35	169	178	171	173	176	179	183
	---	---	---	---	---	---	---	---	---	--
TOTAL	159	208	279	337	342	361	364	358	359	360

C. Revenue Projections

Table 13 below shows the overall system revenue projections. Revenue projections for PCSAT are subject to uncertainty, but are nonetheless useful in demonstrating that the system will generate sufficient revenues to cover costs and yield a reasonable profit. The revenue projections shown in Table 13 were determined by multiplying the anticipated demand for each channel type by the respective projected prices.

Table 13 Revenue Projections ($Millions)

	Year after Start of Service									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Revenue	55	174	345	543	674	713	713	713	713	713

PCSAT expects to be serving more than 1.2 million subscribers by the sixth year of service. Revenue projections are based on a rate of $.75 per minute, an average of 50 minutes per month per subscriber, a $25 activation fee, and a $25 per month access fee. Subscribers will be primarily from four markets: PCS subscribers, cellular subscribers, people living or working in unserved areas and the interstate transportation industry.

D. Plan of Financing

Attachment 2 is a copy of the financial statement of PCSAT. The sole shareholder of PCSAT is American Mobile Satellite Corporation. PCSAT will use a combination of

additional investment by its current shareholder group and funding from new sources to insure adequate financing for this new venture. The funding of PCSAT's proposed MSS system will be independent of the funding of AMSC's MSS system.

Since its inception in 1988, American Mobile Satellite Corporation has demonstrated its ability to successfully undertake major new satellite projects. American Mobile Satellite Corporation currently has raised more than $600 million that is committed to the development of the U.S. Mobile Satellite Service system, including $236 million from a recent stock offering. See Attachment 3 (American Mobile Satellite Corporation's financial statement).

American Mobile Satellite Corporation's investors include several companies with substantial financial resources as well as extensive experience in investing in major communications ventures and in the implementation of new and innovative technologies. Attachment 4 contains the commitment and financial statement of Hughes Communications, Inc. attesting to its willingness and ability to assist PCSAT in financing this project.

Attachment 5 contains the statement of Donaldson, Lufkin & Jenrette Securities Corporation, a leading investment banking firm. Donaldson, Lufkin & Jenrette has extensive experience in raising capital for projects similar to the PCSAT MSS venture, and was the lead underwriter of the AMSC offering. It is the expert view of Donaldson, Lufkin & Jenrette that sufficient equity and debt financing can be obtained for the project on reasonable terms to construct, launch and operate the proposed satellite system.

X. Regulatory Classification

To the extent that PCSAT provides mobile satellite service through its own earth station directly to end users, such operation should be deemed a "commercial mobile radio

service," as defined in Section 332 of the Communications Act and in new Section 20 of the Commission's Rules. See Second Report and Order, Gen. Docket No. 93-252 (March 7, 1994). As such, PCSAT requests that the Commission forbear from regulating PCSAT's commercial mobile radio services as it has for other CMRS providers. PCSAT's services will be competitive with similar offerings by terrestrial and other satellite providers and, as such, rates, terms and conditions of service will be subject to the daily scrutiny of the marketplace. Accordingly, forbearance from Sections 203, 204, 205, 211 and 212 is appropriate. Consistent with the Second Report and Order, PCSAT requests the flexibility to operate as a private or common carrier for purposes of providing space segment to other carriers.

XI. Information Concerning Channel Sales

In response to the detailed questions specified in Domestic Fixed-Satellite Transponder Sales, 90 FCC 2d 1238 (1982), PCSAT submits the following in support of its applications.

A. Proposed Disposition of Satellite Channels

PCSAT may offer channels on its satellite system based on specialized customer requirements. This may include sales and leasing arrangements. PCSAT does not intend to offer channels indifferently to the public. Rather, channel offerings will be based on individualized decisions. National Association of Regulatory Utility Commissioners v. FCC, 525 F.2d 630 (D.C. Cir.), cert. denied, 425 U.S. 999 (1976). This will enable PCSAT to optimize the value of its satellites to all users by making available a variety of services that will result in the greatest market interest. PCSAT, however, will retain the flexibility to

convey channels to affiliated or nonaffiliated entities for common carrier or resale use, including end users.

B. Nature of and Principal Terms of Offerings to Be Made Available to Other Parties

PCSAT believes that the terms of a channel sale or lease arrangements depend on customer requirements for construction, certainty of cost, level of service, and other factors best determined when a specified need is identified and negotiations commenced. Nevertheless, it is expected that the terms of such contracts will include the ownership rights being transferred to the customer (where applicable) and a system of warranty obligations, with the right of customers to terminate their agreements and receive refunds on a prorated basis should channels fail to meet agreed upon standards or should PCSAT be unable to cure a defect. Typically, these contracts would run for a major portion of the life of the satellite. However, PCSAT will retain the flexibility to utilize short-term arrangements when appropriate.

C. Information Governing Marketing Plans

PCSAT may market channels on an individualized basis with arrangements being tailored for the potential customers described herein. Individualized decisions will be made by PCSAT as to service and terms offered, and channels will not be offered indiscriminately to the general public. Because customer compatibility is critical to creating a viable MSS system, the ability to ensure an appropriate mix of services to meet market demands must be preserved.

D. Number of Channels and the Names of Any Purchasing Customers for Which Sales Contracts Have Been Executed

No sales contracts have as yet been executed.

XII. Public Interest Showing

The foregoing description of the PCSAT system demonstrates that the applicant is financially, managerially and technically qualified to construct and operate such system. There is a strong and growing demand for mobile services, including mobile satellite services, that will be served by grant of this application.

XIII. Certifications

A. Section 304 Waiver

PCSAT waives 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 an authorization in accordance with this application.

B. Drug Certification

PCSAT certifies that no party to this Application is subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 853(a) (1991).

CONCLUSION

PCSAT submits that grant of this application is in the public interest and will enable PCSAT to serve the public with a valuable communications service.

Respectfully submitted,

PERSONAL COMMUNICATIONS SATELLITE CORPORATION

By: _____

Brian B. Pemberton
President
Personal Communications
Satellite Corporation
10802 Parkridge Boulevard
Reston, Virginia 22091

Lon C. Levin
Vice President
and Regulatory Counsel
Personal Communications
Satellite Corporation
10802 Parkridge Boulevard
Reston, Virginia 22091
(703) 758-6000

Bruce D. Jacobs
Glenn S. Richards
Fisher Wayland Cooper Leader & Zaragoza
2001 Pennsylvania Avenue, N.W.
Suite 400
Washington, D.C. 20006
(202) 659-3494

Dated: April 7, 1994

4232-000.G06

FIGURES