

EXHIBIT 1

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During its initial license term, Satellife, Inc. ("Satellife") has utilized its experimental license to develop and operate a variety of experimental applications and uses of a Low Earth Orbit satellite, HealthSat II, and compatible ground stations. Grant of the instant application for renewal of this license for an additional two-year term would serve the public interest by permitting the continuation of these experimental activities.

Continued experimental operation of HealthSat II is central to a variety of international humanitarian projects. Satellife provides its health care applications primarily through a program called HealthNet, a computer network which links individual health care workers, research institutes, medical libraries, health ministries, hospitals, and non-governmental organizations around the world. HealthNet uses Healthsat II, simple ground stations made up of computers linked by modem to radio transmitters, and telephone-based electronic mail ("e-mail") networks to provide services reliably and inexpensively even in areas with little or no telecommunications infrastructure. Satellife supplies earth stations to these entities free or below cost, and charges nothing for ongoing communications to HealthSat II. To date, HealthNet operates in 21 African countries, one Latin American country, five Asian countries, and Canada. It has the ability to collect data for 5,000 rural and isolated sites worldwide.

Other programs made available by Satellife include:

- The Program for Monitoring Emerging Diseases ("ProMED-mail"), an international, Internet-based, e-mail network designed to encourage the sharing of information on emerging infectious diseases around the world. ProMED-mail is jointly sponsored by the World Health Organization ("WHO") and the American Federation of Scientists, and serves nearly 10,000 subscribers in nearly 100 countries and territories.
- ProCAARE, a global electronic conference on HIV/AIDS and other sexually-transmitted diseases. Through ProCAARE, clinicians and researchers in developing countries exchange information on HIV/AIDS with their colleagues around the world.
- E-Drug, or the Essential Drugs Mailing List, which provides access to a list of persons and organizations with information on drugs that are particularly essential to healthcare workers around the world.
- ProCOR, a conference to discuss the incidence and treatment of cardiovascular disease as it appears in developing countries. This conference was established in response to the WHO's declaration that cardiovascular disease is one of the chief noncommunicable emerging diseases in the developing world.

Each of these programs has a scientific oversight committee, as well as moderators, consisting of the leading clinical practitioners and researchers in their respective fields.

Satellite also is experiencing a surge of interest in the use of its experimental communications from the WHO's division for Global Monitoring of Emerging and Communicable Diseases, the WHO's Global Vaccine Program, the United Nations Development Program, the United Nations Environment Program, the International Development Research Center of Canada, the Expanded Program on Immunization, the Rockefeller Foundation's International Clinical Epidemiology Network, the Pan American Health Organization, UNICEF, the Swedish Agency for Research Cooperation with Developing Countries, and the International Program Against Micronutrient Malnutrition.

The experimental license which is the subject of the instant renewal application contains a condition that Satellite, Inc. cease operation on frequencies 149.8225, 149.8475 and 149.8725 MHz "upon launch of VITA's Little Leo Satellite in this band." File No. 482-EX-PL-95 at 2. This condition has been the subject of extensive proceedings before the FCC. Shortly after the grant of Satellite's experimental license, Satellite requested, in a Petition to Deny filed February 23, 1996, that Satellite be permitted to continue operating under its experimental license on a secondary non-interference basis following launch of VITASAT-1R.^{1/} In support of this Petition to Deny, Satellite extensively described the experimental humanitarian communication services provided by Satellite under the experimental license. In its decision granting authorization for VITASAT-1R^{2/} the Commission declined to grant Satellite's request.

On April 7, 1997, Satellite timely filed a petition for reconsideration of this decision, contending that the VITASAT-1R Order failed to consider or address important public interest issues with respect to the continued operation of HealthSat II under Satellite's experimental license.^{3/} At the time, the Petition for Reconsideration presented urgent issues due to the fact that VITA was required to launch VITASAT-1R by March 31, 1997. VITA subsequently notified the Commission that the launch of VITASAT-1R had been delayed until late April. The

^{1/} In re Application of Volunteers in Technical Assistance for Authority to Construct, Launch and Operate a Non-Voice Non-Geostationary Mobile-Satellite System, File Nos. CSS-91-007(3), 30 DSS-AMEND-94, 40 SAT-P/LA-96, Satellite, Inc. Petition to Deny, filed February 23, 1996.

^{2/} In re Application of Volunteers in Technical Assistance for Authority to Construct, Launch and Operate a Non-Voice Non-Geostationary Mobile-Satellite System, File Nos. CSS-91-007(3), 30 DSS-AMEND-94, 40 SAT-P/LA-96, DA 97-501 (International Bureau, rel. March 7, 1997) ("VITASAT-1R Order").

^{3/} In re Application of Volunteers in Technical Assistance for Authority to Construct, Launch and Operate a Non-Voice Non-Geostationary Mobile-Satellite System, File Nos. CSS-91-007(3), 30 DSS-AMEND-94, 40 SAT-P/LA-96, DA 97-501, Petition for Reconsideration, filed April 7, 1997 ("Petition for Reconsideration").

scheduled launch did not take place in this time frame, and VITA apparently has not yet notified the Commission of a new launch date.

At the request of the staff of the International Bureau, on April 11, 1997, VITA and Satellife met with Bureau staff to discuss technical issues raised by Satellife's proposal to continue operation of HealthSat II under Satellife's experimental license on a secondary non-interference basis with VITASAT-1R following launch. Following this meeting, Satellife submitted additional technical information to the Bureau staff and VITA describing the technical means of accomplishing operation of HealthSat II on a non-interference basis to VITASAT-1R. A copy of this submission is attached as Exhibit 1A. In addition, on April 30, 1997, Satellife met with representatives of VITA and Final Analysis, the manufacturer of the satellite on which the VITASAT-1R payload is proposed to be launched, to answer any further questions which these parties might have with respect to Satellife's technical proposal. After this meeting, on May 14, 1997, Satellife forwarded additional technical information to VITA and Final Analysis. See Exhibit 1B.

Satellife understands that the technical information submitted in connection with these discussions is still under review by VITA and Final Analysis. Satellife had hoped to include a report of the results of these technical discussions with its application for renewal of its experimental license, so that these results could be considered as part of the process of renewing Satellife's experimental license, and the Office of Engineering and Technology could reflect these results in its grant of Satellife's renewal application. Since Satellife has yet to receive a response to its technical submissions from VITA, Satellife has determined to proceed at this time with the filing of this renewal application in order to permit timely grant of the application and continued operation of HealthSat II under the experimental license.^{4/} In order to permit processing of the experimental license application, notwithstanding the pendency of Satellife's continuing request that Satellife be permitted to operate on a secondary non-interference basis following launch and operation of VITASAT-1R, Satellife will accept renewal of its experimental license with the condition contained in its original license, without prejudice to its request, currently pending before the International Bureau, for a declaration that Satellife will not be required to cease operation upon launch and operation of VITASAT-1R, but will thereafter be permitted to continue to operate on a secondary, non-interference basis. Processing the renewal application on this basis will cause no prejudice to VITA in that it maintains the status quo with respect to Satellife's operation of HealthSat II under its experimental license. Satellife respectfully requests, however, that the Commission expressly acknowledge that the requirement

^{4/} Section 5.56(d) of the Commission's rules generally requires that applications for renewal of licenses be filed 60 days prior to the expiration date of the license to be renewed. Under the circumstances set forth, Satellife submits that it was appropriate for Satellife to submit its application for renewal at this time, since it has been endeavoring in good faith to attempt to resolve technical issues presented by Satellife's operations under its experimental license. Satellife is acting in accordance with Commission policies favoring resolution of technical issues by voluntary discussions and accommodations in the first instance, and these efforts constitute good cause for filing at this time.

of cessation of operation upon launch of VITASAT-1R set forth in the condition is subject to resolution of the issues presented in Satellife's Petition for Reconsideration.

DCDOCS: 113394.1 (2/11/01).doc)

EXHIBIT 1A

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

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James A. Kirkland

Direct Dial Number
202/434-7329

April 15, 1997

VIA HAND DELIVERY

Mr. Harold Ng
Chief, Satellite Engineering Branch
International Bureau
Federal Communications Commission
2000 M Street, N.W.
Room 801
Washington, D.C. 20554

Re: Application of Volunteers in Technical Assistance for Authority to Construct, Launch and Operate a Non-Voice, Non-Geostationary Mobile-Satellite System, File Nos. CSS-91-007(3), 30-DSS-AMEND-94, 40-SAT-P/LA-96 -- Petition for Reconsideration filed by Satellife, Inc.

Dear Mr. Ng:

Please find enclosed information you requested concerning Satellife, Inc.'s operation of its experimental satellite, Healthsat II, on a non-interference basis with VITASAT-1R, the satellite set to be launched by Volunteers in Technical Assistance. We hope that this information will serve as the basis for a prompt resolution of the technical issues raised by Satellife's pending request to continue operation of Healthsat II on a secondary basis following Launch of VITASAT-1R on Thursday of this week. This letter also will confirm that Satellife has programmed Healthsat II to cease transmissions at 2100 hours April 16, as Satellife offered to do at our meeting on Friday. Satellife is doing so as a voluntary accomodation in order to permit VITA maximum protection following launch of VITASAT 1R, notwithstanding the fact that the International Bureau's March 7 order specifies that Healthsat II is required to cease operation "upon launch and operation" of VITASAT-1R. In light of the cessation of operations of Healthsat II, it is critical that the consideration of the technical issues takes place as expeditiously as possible, as each day that Healthsat II is not transmitting denies critical communications services to the neediest parts of the world, as set forth in Satellife's submissions to the Commission. Moreover, as set forth herein, Satellife is capable of implementing immediate protective measures once VITASAT-1R's orbital information is available following launch.

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The information enclosed is as follows:

- (1) the uplink and downlink transmission parameters of Healthsat II,
- (2) the orbital parameters of Healthsat II,
- (3) the locations of the Healthsat II ground stations,
- (4) a description of the scheduling feature contained in the Healthsat II ground stations, and
- (5) information on the accuracy of Healthsat II's position location capabilities.

We have discussed with Surrey Satellite Technology Ltd. ("Surrey"), the manufacturer of the satellite, the possibility of developing software for loading into Healthsat II, which would enable HealthSat II to automatically suspend transmissions to Healthsat II ground stations during the periods of time in which VITASAT-1R would be visible to those ground stations. However, as briefly discussed at the close of our meeting on Friday, April 11, 1997, and based on further technical discussions with Surrey, Satellife can achieve the same results with even greater reliability and simplicity by relying on the existing onboard software, and uploading transmitter schedules to Healthsat II on a weekly basis. This technique would cause Healthsat II to suspend transmissions to the Healthsat II ground stations in accordance with the orbital schedule and protection parameters provided by VITA for VITASAT-1R. This same technique has already been employed by Satellife in order to schedule and implement changes in the operational parameters of the satellite in the past. Surrey's description of this technique is provided in the enclosed materials. Moreover, because this technique can be implemented as soon as VITASAT-1R is launched and the necessary technical information is provided by VITA, its implementation should allow Satellife to reactivate Healthsat II once VITA has successfully rendered VITASAT-1R operational. This approach also eliminates the need to develop new onboard software for HealthSat II, and the expense associated with this development.

Finally, as reflected in the attached materials and in the interest of expediting matters, Satellife hereby offers a transmission protective zone based on 10 degree separation of the 0 degree line of the footprints of HealthSat II and VITASAT-1R, which is well in excess of the 0° separation proposed in the Commission's Little LEO Notice of Proposed Rulemaking.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

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We look forward to further discussions to finalize a resolution of the pending technical matters. If you have any questions regarding the enclosed materials, please do not hesitate to give us a call.

Sincerely,



James A. Kirkland

Enclosures

cc: Henry Goldberg, Esq. (via telecopy)
Mr. Henry Norman (via telecopy)
Mr. William F. Caton
Ms. Ruth Milkman
Mr. Thomas S. Tycz
Ms. Cassandra Thomas
Mr. Brian Carter
Ms. Cecily Holiday

HealthSat-2 Technical Specifications

HealthSat-2, launched in September 1993 on the Ariane ASAP, is the second satellite of the HealthNet communications system, administrated by the US organization SatelLife. HealthNet provides store-and-forward e-mail access to the most remote locations on the planet. The system is used to provide healthcare workers with e-mail connectivity to the Internet.

The "state-of-the-art" design of HealthSat-2 mission is the cumulation of Surrey Satellite Technology Ltd. (SSTL) pioneering work in store-and-forward communications. Surrey flew the first civil store-and-forward communications payload on UoSAT-2 in 1984 and has flown increasingly capable payloads on several subsequent satellites.

HealthSat-2 has been custom-designed to support cost effective store-and-forward communications using low cost, portable ground stations and consequently it has the following main mission characteristics:

Communications link

- 2 uplink receivers in VHF
 - Receiver #1 (149.8225 MHz or 149.8475 MHz)
 - Receiver #2 (149.8475 MHz or 149.8725 MHz)
- 2 redundant transmitters in UHF @ 400.550 MHz
- Emission designator 16K0F1D
- Omnidirectional satellite antennas (monopoles) at RX and TX
- FSK modulation
- 9600 bps uplink, 9600 bps downlink data rates
- Output transmitter power adaptive from 0 W to 10 W
- AX.25 packet radio communication protocol

Onboard Payload

- Dual redundant 80C186 on-board computer at 8 MHz
- Highly integrated 80C188 back-up on-board computer at 10 MHz
- 48 Mbytes SRAM on-board memory
- Radiation-induced SEU memory EDAC protection
- Advanced solar cell technology experimental payload
- Attitude control by active magnets

Orbital Characteristics

Satellite: HEATHSAT
Catalog number: 22827
Epoch time: 97095.25300957
Element set: 609
Inclination: 98.5492 deg
RA of node: 171.1849 deg
Eccentricity: 0.0010262
Arg of perigee: 81.9307 deg
Mean anomaly: 278.3037 deg
Mean motion: 14.27973781 rev/day
Decay rate: 6.200e-07 rev/day²
Epoch rev: 18369
Checksum: 380

HEATHSAT

1 22827U 93061E 97095.25300957 .00000062 00000-0 42241-4 0 6094
2 22827 98.5492 171.1849 0010262 81.9307 278.3037 14.27973781183696

Ground Station Specification

Radio Subsystem

- Computer controlled uplink channel selection (149.8225 MHz, 149.8475 MHz, or 149.8725 MHz)
- Downlink receiver frequency: 400.550 MHz
- Emission designator: 16K0F1D
- Maximum radio transmitter power: 45 Watts
- Emmission type: 9600 bps FSK

Antenna Subsystem

- 10 dBd RHCP crossed yagi @ 149.9 MHz
- 12 dBd RHCP crossed yagi @ 400.5 MHz
- Stearable tracking system with resolution better than 3 degrees

Current Ground Station Locations

- Mwanza, Tanzania, 2.483 S, 33.063 E
- Ifakara, Tanzania, 8.012 S, 36.812 E
- Navrongo, Ghana, 11.002 N, 1.204 W
- Ibadan, Nigeria, 7.416 N, 2.513 E
- Lambarene, Gabon, 1.253 S, 12.480 E
- Vanga, Zaire, 6.322 S, 19.026 E
- Guiyang, China, 26.505 N, 106.110 E
- St. John's, Canada, 47.315 N, 52.300 W
- Boston MA, USA, 42.366 N, 71.084 W

Confirmation of Scheduled Non-interference Secondary Usage of HS-2 from Surrey Satellite Technology Ltd:

Date: Mon, 14 Apr 1997 17:05:06 -0000
From: Chris Jackson <C.Jackson@ee.surrey.ac.uk>
To: 'John Mullaney' <jmullaney@usa.healthnet.org>,
Subject: HealthSat-2 operations

As requested, the following action is proposed in response to the FCC request to cease transmission from the HealthSat-2 spacecraft.

At approximately 2100UTC on Wednesday 16th April 1997, the HealthSat-2 transmitter will be commanded OFF, and will remain off until further notification is received from SatelLife.

To ensure that HealthSat-2 does not interfere with VITASAT, SSTL can add transmitter scheduling to the weekly routine operations on HealthSat-2. This would comprise a ground based scheduling system which would use a predictive tracking algorithm to command the HealthSat-2 transmitter off when the relative ground visibility circles of the two spacecraft approaches the -10 degree line. This ensures that if a groundstation has mutual visibility with both spacecraft, HealthSat-2 will not be transmitting.

This will produce a command script file which will be automatically loaded to the spacecraft from the Surrey Mission Operations Center every Monday along with other routine operations files. The correct operation of this system can be confirmed on the ground by downloading and analysing the spacecraft data logs.

The position accuracy of the predictive tracking algorithm to be used in this system using the SGP4 propagator is better than 5 kilometers using Keplerian element data that is one week old. Given that the spacecraft travels 7.5 kilometers per second, this equates to timing of better than 1 second. The Keplerian elements used in the tracking system at SSTL are updated daily from the NASA bulletin board and should never be older than 3 days. The spacecraft time is updated twice daily from the Surrey Mission Operations Center to an accuracy of 10 milliseconds using a Global Position System time standard, and the spacecraft clock is always within 0.5 seconds of the correct time.

I hope that the above system will cover your requirements.

Regards
Chris Jackson
Groundstation and Operations Manager
Surrey Satellite Technology Ltd
University of Surrey
Guildford, Surrey GU2 5HX, UK
Ph: +44 1483 259-141
Fax: +44 1483 259-503
<http://www.ee.surrey.ac.uk/EE/CSER/UOSAT/>

Ground Station Coordination between HealthSat II and VITASAT-1R

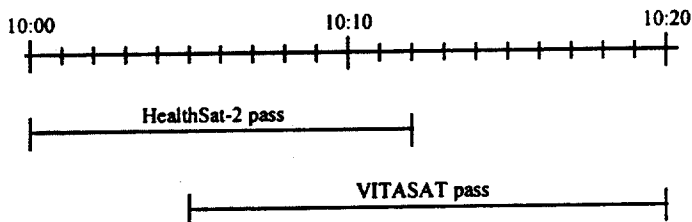
The satellites HealthSat II and VITASAT-1R have the same uplink frequencies. In order to operate on a non-interference basis to VITASAT-1R, Satellife's ground stations can prioritize the uplink channel utilized. In this scheme, a priority can be given to VITASAT-1R so that transmissions between a HealthSat II ground station and HealthSat II will never interfere with a transmission between a VITASAT-1R ground station and VITASAT-1R.

Satellife will ensure that additional logic is added to all HealthSat II ground stations in order to avoid interference with VITASAT-1R. By adding the Keplerian elements for VITASAT-1R, by indicating that VITASAT-1R should have highest priority, and by specifying that ground-stations may not communicate during the time period that VITASAT-1R is within -10 (minus 10) degrees of the horizon, non-interference will be easily assured. This information can be downloaded automatically to HealthSat II's ground stations once the Keplerian data for VITASAT-1R is available after launch.

The attachment shows a sample schedule for satellite passes at the ground station based on an estimated orbit of VITASAT-1R. On the schedule, whenever there is a VITASAT-1R satellite pass, the HealthSat II ground station will stop transmitting.

For example:

Let's suppose a Satellife ground station will be able to "see" HealthSat II from 10:00 am to 10:12 am. Further, suppose that a VITASAT pass occurs from 10:05 am to 10:20 am as shown in the diagram below:



The diagram shows an overlap from 10:05 am to 10:12 am. In order to avoid any interference with VITASAT-1R, Satellife proposes a priority scheme in which a higher priority is given to VITASAT-1R. A few minutes before VITASAT-1R becomes visible to a HealthSat II ground station (-10 degrees below the horizon), the HealthSat II ground station would stop its transmissions to HealthSat II. The uplink channel would be immediately available for use by VITASAT-1R ground stations. In this scenario, the HealthSat II ground station would have access to HealthSat II from 10:00 am to 10:05 am.

The current software employed by HealthSat II ground stations is already capable of functioning according to the priority scheme mentioned here. It should also be noted that any particular

satellite ground station should "see" both HealthSat II and VITASAT-1R only for an extremely small percentage of time during any particular day, if at all.

With the proposed frequency sharing, HealthSat II ground stations would not interfere with VITASAT-1R.

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Groundstation Control

Setup Housekeeping Tracking Database Programs Help

18:52:03 UTC
14 Apr 1997
VITASAT-1R
00:02:45 AOS

View Drive
MsgMaker
Terminal

Satellite	P-El	Start Time	Finish Time
VITASAT-1R	1 43	14-04-97 18:54:08	14-04-97 19:16:04
VITASAT-1R	1 49	14-04-97 20:50:28	14-04-97 21:11:34
VITASAT-1R	1 6	14-04-97 22:48:18	14-04-97 23:00:44
HS-02	3 1	15-04-97 00:08:50	15-04-97 00:14:06
HS-02	3 28	15-04-97 01:42:40	15-04-97 01:56:26
HS-02	3 37	15-04-97 03:21:40	15-04-97 03:36:16
HS-02	3 1	15-04-97 05:07:40	15-04-97 05:12:06
VITASAT-1R	1 24	15-04-97 09:25:08	15-04-97 09:44:24
VITASAT-1R	1 76	15-04-97 11:18:28	15-04-97 11:40:24
VITASAT-1R	1 23	15-04-97 13:36:28	15-04-97 13:36:04
HS-02	3 8	15-04-97 13:56:20	15-04-97 14:06:56
VITASAT-1R	1 12	15-04-97 15:01:58	15-04-97 15:33:44
HS-02	3 76	15-04-97 15:34:00	15-04-97 15:49:36
HS-02	3 15	15-04-97 17:34:30	15-04-97 17:27:16
VITASAT-1R	1 19	15-04-97 17:15:08	15-04-97 17:34:14
VITASAT-1R	1 59	15-04-97 19:18:08	15-04-97 19:32:54
HS-02	3 17	16-04-97 01:16:20	16-04-97 01:28:56

Satellite Azm Ele Range Doppler MA Mode

HS-02 65.0 -57.4 11669.7 4186Hz 213.7 J

VITASAT-1R 324.6 -8.0 5320.4 2896Hz 129.7

Satellite	Azm	Ele	Range	Doppler	MA	Mode
HS-02-01	65.0	-57.4	11669.7	4186Hz	213.7	J
VITASAT-1R	324.6	-8.0	5320.4	7896Hz	129.7	

EXHIBIT 1B

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

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May 14, 1997

VIA HAND DELIVERY

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David W. Grimes
Chief Engineer
Final Analysis
9701-E Philadelphia Court
Lanham, Maryland 20706-4400

Dear Messrs. Browne and Grimes:

As an initial matter, I wish to thank the both of you for your participation in our April 30, 1997 meeting to address technical issues raised by Satellife's proposal to operate HealthSat II on a secondary non-interference basis with VITASAT-1R once VITASAT-1R has been launched. We appreciated the constructive spirit in which the meeting was conducted, and were pleased with the general assessment that technical issues raised by this proposal appeared to be resolvable. At the meeting, you requested certain additional information in order to complete your technical analysis of the proposal. Attached you will find the information you requested, which consists of: a description of the strategy for calculating the time periods during which HealthSat II would cease transmissions in order to avoid interference to VITASAT-1R; a description of how this information is programmed into HealthSat II; and a sample calculation based on assumed Keplerian data for VITASAT-1R.

May 14, 1997

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Please let us know if we can be of any further assistance as you complete your technical analysis. I am hopeful that we will be able to report the results of our discussions to Harry Ng in the near future.

Best regards.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Kirkland", with a long, sweeping horizontal line extending to the right.

James A. Kirkland

cc: Edson W.R. Pereira
Michael H. Anan
Joseph Godles, Esq.
Harry Ng, Federal Communications Commission

From: "Edson W.R. Pereira" <ewp@usa.healthnet.org>
To: Mintz.DC_PO(jpurvis)
Date: 5/13/97 11:14am
Subject: HS2 scheduling (fwd)

----- Forwarded message -----

Date: Sun, 11 May 1997 09:20:35 +0100
From: Chris Jackson <C.Jackson@ee.surrey.ac.uk>
To: "'Edson W.R. Pereira'" <ewp@usa.healthnet.org>
Subject: HS2 scheduling

Hi Edson,

In answer to your questions....

The routine to calculate the times works as follows...
The position of both spacecraft is calculated using the SGP4 propagator, and their altitude above the Earth is obtained. From this the slant range to the -5 degree elevation point is calculated for both satellites, and these two numbers are added together to give the minimum distance apart the spacecraft can be before they encroach into the -10 degree protection zone. The distance between the spacecraft is then calculated and this is compared to the minimum range calculated above. This program outputs a command script that will be automatically uploaded to the spacecraft each Monday along with the other routine operations files and this will switch the transmitter on/off as required.
The script will be calculated for 2 weeks just in case there is any problem with uploading the updated file at any stage.

A sample table follows. This is calculated for 10 days with protection zone of -10 degrees.

The keys used to derive the table are

VITASAT-1R

1 24772U 97017A 97110.96011425 +.000000687 +00000-0 +75187-3 0 00120
2 24772 082.9174 067.1063 0024415 251.8449 108.0038 13.71024347000469

HealthSat-2

1 22827U 93061E 97120.75817794 +.000000016 +00000-0 +23820-4 0 06338
2 22827 098.5435 196.1347 0009742 013.5618 346.5823 14.27976913187336

Report file generated at 11 May 97 07:54:47

Calculation step rate 1 seconds

Minimum elevation separation -10 degrees

Satellite 1: HealthSat-2 keys epoch 97120.758178

Satellite 2: VITASAT-1R keys epoch 97110.960114

=====

Start Time	End Time	Duration	SSP
at closest approach			

11May97 08:10:52 to 11May97 08:30:08	(19 minutes, 16 seconds) at Lat=
77.36, Lon= 168.00	
11May97 09:02:09 to 11May97 09:21:47	(19 minutes, 38 seconds) at
Lat=-79.98, Lon= -40.91	
11May97 09:53:42 to 11May97 10:13:13	(19 minutes, 31 seconds) at Lat=
81.35, Lon= 104.92	
11May97 10:45:00 to 11May97 11:04:50	(19 minutes, 50 seconds) at
Lat=-81.20, Lon=-114.06	
11May97 11:36:32 to 11May97 11:56:17	(19 minutes, 45 seconds) at Lat=
79.57, Lon= 32.54	
11May97 12:27:51 to 11May97 12:47:53	(20 minutes, 2 seconds) at
Lat=-76.97, Lon=-174.42	
11May97 13:19:24 to 11May97 13:39:20	(19 minutes, 56 seconds) at Lat=
73.91, Lon= -16.28	
11May97 14:10:44 to 11May97 14:30:55	(20 minutes, 11 seconds) at
Lat=-70.62, Lon= 144.75	
11May97 15:02:16 to 11May97 15:22:22	(20 minutes, 6 seconds) at Lat=
67.15, Lon= -52.48	
11May97 15:53:38 to 11May97 16:13:55	(20 minutes, 17 seconds) at
Lat=-63.74, Lon= 111.49	
11May97 16:45:10 to 11May97 17:05:22	(20 minutes, 12 seconds) at Lat=
60.11, Lon= -83.93	
11May97 17:36:33 to 11May97 17:56:53	(20 minutes, 20 seconds) at
Lat=-56.73, Lon= 81.28	
11May97 18:28:06 to 11May97 18:48:20	(20 minutes, 14 seconds) at Lat=
53.03, Lon=-113.30	
11May97 19:19:31 to 11May97 19:39:50	(20 minutes, 19 seconds) at
Lat=-49.65, Lon= 52.51	
11May97 20:11:03 to 11May97 20:31:17	(20 minutes, 14 seconds) at Lat=
45.92, Lon=-141.61	
11May97 21:02:30 to 11May97 21:22:45	(20 minutes, 15 seconds) at
Lat=-42.62, Lon= 24.55	
11May97 21:54:01 to 11May97 22:14:12	(20 minutes, 11 seconds) at Lat=
38.86, Lon=-169.30	
11May97 22:45:30 to 11May97 23:05:38	(20 minutes, 8 seconds) at
Lat=-35.66, Lon= -2.92	
11May97 23:37:02 to 11May97 23:57:06	(20 minutes, 4 seconds) at Lat=
31.84, Lon= 163.38	
12May97 00:28:32 to 12May97 00:48:31	(19 minutes, 59 seconds) at
Lat=-28.67, Lon= -30.11	
12May97 01:20:03 to 12May97 01:39:59	(19 minutes, 56 seconds) at Lat=
24.84, Lon= 136.30	
12May97 02:11:35 to 12May97 02:31:22	(19 minutes, 47 seconds) at
Lat=-21.77, Lon= -57.09	
12May97 03:03:05 to 12May97 03:22:51	(19 minutes, 46 seconds) at Lat=
17.89, Lon= 109.38	
12May97 03:54:39 to 12May97 04:14:13	(19 minutes, 34 seconds) at
Lat=-14.85, Lon= -83.95	
12May97 04:46:08 to 12May97 05:05:42	(19 minutes, 34 seconds) at Lat=
10.99, Lon= 82.57	
12May97 05:37:43 to 12May97 05:57:03	(19 minutes, 20 seconds) at Lat=
-7.98, Lon=-110.73	
12May97 06:29:11 to 12May97 06:48:34	(19 minutes, 23 seconds) at Lat=
4.02, Lon= 55.79	

12May97 07:20:47 to 12May97 07:39:54	(19 minutes, 7 seconds) at Lat=-1.05, Lon=-137.49
12May97 08:12:13 to 12May97 08:31:25	(19 minutes, 12 seconds) at Lat=-2.89, Lon= 29.04
12May97 09:03:50 to 12May97 09:22:45	(18 minutes, 55 seconds) at Lat=5.89, Lon=-164.24
12May97 09:55:15 to 12May97 10:14:18	(19 minutes, 3 seconds) at Lat=-9.92, Lon= 2.25
12May97 10:46:53 to 12May97 11:05:37	(18 minutes, 44 seconds) at Lat=12.88, Lon= 168.96
12May97 11:38:16 to 12May97 11:57:11	(18 minutes, 55 seconds) at Lat=-16.94, Lon= -24.58
12May97 12:29:54 to 12May97 12:48:31	(18 minutes, 37 seconds) at Lat=19.99, Lon= 142.08
12May97 13:21:16 to 12May97 13:40:06	(18 minutes, 50 seconds) at Lat=-24.06, Lon= -51.53
12May97 14:12:54 to 12May97 14:31:26	(18 minutes, 32 seconds) at Lat=27.13, Lon= 115.07
12May97 15:04:14 to 12May97 15:23:03	(18 minutes, 49 seconds) at Lat=-31.28, Lon= -78.65
12May97 15:55:52 to 12May97 16:14:23	(18 minutes, 31 seconds) at Lat=34.38, Lon= 87.86
12May97 16:47:11 to 12May97 17:06:00	(18 minutes, 49 seconds) at Lat=-38.48, Lon=-106.00
12May97 17:38:48 to 12May97 17:57:21	(18 minutes, 33 seconds) at Lat=41.65, Lon= 60.35
12May97 18:30:07 to 12May97 18:49:00	(18 minutes, 53 seconds) at Lat=-45.81, Lon=-133.77
12May97 19:21:43 to 12May97 19:40:21	(18 minutes, 38 seconds) at Lat=48.99, Lon= 32.34
12May97 20:13:01 to 12May97 20:32:00	(18 minutes, 59 seconds) at Lat=-53.08, Lon=-162.15
12May97 21:04:37 to 12May97 21:23:22	(18 minutes, 45 seconds) at Lat=56.32, Lon= 3.52
12May97 21:55:54 to 12May97 22:15:02	(19 minutes, 8 seconds) at Lat=-60.37, Lon= 168.33
12May97 22:47:29 to 12May97 23:06:24	(18 minutes, 55 seconds) at Lat=63.58, Lon= -26.78
12May97 23:38:46 to 12May97 23:58:04	(19 minutes, 18 seconds) at Lat=-67.49, Lon= 136.66
13May97 00:30:21 to 13May97 00:49:27	(19 minutes, 6 seconds) at Lat=70.64, Lon= -60.22
13May97 01:21:38 to 13May97 01:41:07	(19 minutes, 29 seconds) at Lat=-74.26, Lon= 100.01
13May97 02:13:13 to 13May97 02:32:31	(19 minutes, 18 seconds) at Lat=77.09, Lon=-101.50
13May97 03:04:30 to 13May97 03:24:09	(19 minutes, 39 seconds) at Lat=-79.76, Lon= 50.48
13May97 03:56:04 to 13May97 04:15:34	(19 minutes, 30 seconds) at Lat=81.24, Lon=-162.55
13May97 04:47:22 to 13May97 05:07:11	(19 minutes, 49 seconds) at Lat=-81.31, Lon= -21.61
13May97 05:38:56 to 13May97 05:58:37	(19 minutes, 41 seconds) at Lat=79.87, Lon= 124.48

13May97 06:30:14 to 13May97 06:50:13	(19 minutes, 59 seconds) at
Lat=-77.37, Lon= -83.41	
13May97 07:21:48 to 13May97 07:41:39	(19 minutes, 51 seconds) at Lat=
74.42, Lon= 74.33	
13May97 08:13:08 to 13May97 08:33:14	(20 minutes, 6 seconds) at
Lat=-71.15, Lon=-125.03	
13May97 09:04:41 to 13May97 09:24:40	(19 minutes, 59 seconds) at Lat=
67.76, Lon= 37.60	
13May97 09:56:03 to 13May97 10:16:13	(20 minutes, 10 seconds) at
Lat=-64.35, Lon=-158.60	
13May97 10:47:36 to 13May97 11:07:39	(20 minutes, 3 seconds) at Lat=
60.81, Lon= 5.93	
13May97 11:38:59 to 13May97 11:59:11	(20 minutes, 12 seconds) at
Lat=-57.36, Lon= 171.02	
13May97 12:30:31 to 13May97 12:50:38	(20 minutes, 7 seconds) at Lat=
53.68, Lon= -23.61	
13May97 13:21:56 to 13May97 13:42:08	(20 minutes, 12 seconds) at
Lat=-50.29, Lon= 142.15	
13May97 14:13:28 to 13May97 14:33:35	(20 minutes, 7 seconds) at Lat=
46.57, Lon= -51.99	
13May97 15:04:54 to 13May97 15:25:04	(20 minutes, 10 seconds) at
Lat=-43.21, Lon= 114.12	
13May97 15:56:26 to 13May97 16:16:31	(20 minutes, 5 seconds) at Lat=
39.47, Lon= -79.74	
13May97 16:47:54 to 13May97 17:07:58	(20 minutes, 4 seconds) at
Lat=-36.19, Lon= 86.60	
13May97 17:39:25 to 13May97 17:59:26	(20 minutes, 1 seconds) at Lat=
32.38, Lon=-107.10	
13May97 18:30:55 to 13May97 18:50:51	(19 minutes, 56 seconds) at
Lat=-29.20, Lon= 59.40	
13May97 19:22:25 to 13May97 19:42:20	(19 minutes, 55 seconds) at Lat=
25.33, Lon=-134.21	
13May97 20:13:57 to 13May97 20:33:44	(19 minutes, 47 seconds) at
Lat=-22.18, Lon= 32.38	
13May97 21:05:26 to 13May97 21:25:13	(19 minutes, 47 seconds) at Lat=
18.32, Lon=-161.15	
13May97 21:56:59 to 13May97 22:16:36	(19 minutes, 37 seconds) at
Lat=-15.21, Lon= 5.49	
13May97 22:48:28 to 13May97 23:08:06	(19 minutes, 38 seconds) at Lat=
11.30, Lon= 172.00	
13May97 23:40:02 to 13May97 23:59:28	(19 minutes, 26 seconds) at Lat=
-8.22, Lon= -21.31	
14May97 00:31:29 to 14May97 00:50:59	(19 minutes, 30 seconds) at Lat=
4.27, Lon= 145.21	
14May97 01:23:04 to 14May97 01:42:20	(19 minutes, 16 seconds) at Lat=
-1.22, Lon= -48.09	
14May97 02:14:30 to 14May97 02:33:52	(19 minutes, 22 seconds) at Lat=
-2.76, Lon= 118.44	
14May97 03:06:06 to 14May97 03:25:12	(19 minutes, 6 seconds) at Lat=
5.77, Lon= -74.85	
14May97 03:57:31 to 14May97 04:16:46	(19 minutes, 15 seconds) at Lat=
-9.84, Lon= 91.64	
14May97 04:49:08 to 14May97 05:08:05	(18 minutes, 57 seconds) at Lat=
12.82, Lon=-101.66	

14May97 05:40:31 to 14May97 05:59:40	(19 minutes, 9 seconds) at
Lat=-16.92, Lon= 64.79	
14May97 06:32:08 to 14May97 06:51:00	(18 minutes, 52 seconds) at Lat=
19.99, Lon=-128.55	
14May97 07:23:30 to 14May97 07:42:35	(19 minutes, 5 seconds) at
Lat=-24.05, Lon= 37.84	
14May97 08:15:08 to 14May97 08:33:55	(18 minutes, 47 seconds) at Lat=
27.13, Lon=-155.56	
14May97 09:06:28 to 14May97 09:25:32	(19 minutes, 4 seconds) at
Lat=-31.27, Lon= 10.72	
14May97 09:58:06 to 14May97 10:16:52	(18 minutes, 46 seconds) at Lat=
34.38, Lon= 177.23	
14May97 10:49:25 to 14May97 11:08:29	(19 minutes, 4 seconds) at
Lat=-38.47, Lon= -16.63	
14May97 11:41:03 to 14May97 11:59:50	(18 minutes, 47 seconds) at Lat=
41.65, Lon= 149.72	
14May97 12:32:21 to 14May97 12:51:28	(19 minutes, 7 seconds) at
Lat=-45.74, Lon= -44.38	
14May97 13:23:58 to 14May97 13:42:49	(18 minutes, 51 seconds) at Lat=
48.93, Lon= 121.73	
14May97 14:15:16 to 14May97 14:34:28	(19 minutes, 12 seconds) at
Lat=-53.01, Lon= -72.75	
14May97 15:06:53 to 14May97 15:25:49	(18 minutes, 56 seconds) at Lat=
56.20, Lon= 92.96	
14May97 15:58:10 to 14May97 16:17:28	(19 minutes, 18 seconds) at
Lat=-60.20, Lon=-102.18	
14May97 16:49:47 to 14May97 17:08:50	(19 minutes, 3 seconds) at Lat=
63.40, Lon= 62.73	
14May97 17:41:04 to 14May97 18:00:29	(19 minutes, 25 seconds) at
Lat=-67.27, Lon=-133.71	
14May97 18:32:40 to 14May97 18:51:51	(19 minutes, 11 seconds) at Lat=
70.37, Lon= 29.57	
14May97 19:23:57 to 14May97 19:43:30	(19 minutes, 33 seconds) at
Lat=-73.96, Lon=-169.89	
14May97 20:15:32 to 14May97 20:34:53	(19 minutes, 21 seconds) at Lat=
76.77, Lon= -10.88	
14May97 21:06:50 to 14May97 21:26:31	(19 minutes, 41 seconds) at
Lat=-79.52, Lon= 141.78	
14May97 21:58:25 to 14May97 22:17:55	(19 minutes, 30 seconds) at Lat=
81.11, Lon= -70.11	
14May97 22:49:43 to 14May97 23:09:32	(19 minutes, 49 seconds) at
Lat=-81.39, Lon= 70.89	
14May97 23:41:18 to 15May97 00:00:57	(19 minutes, 39 seconds) at Lat=
80.16, Lon=-143.44	
15May97 00:32:37 to 15May97 00:52:33	(19 minutes, 56 seconds) at
Lat=-77.75, Lon= 7.69	
15May97 01:24:11 to 15May97 01:43:58	(19 minutes, 47 seconds) at Lat=
74.92, Lon= 165.02	
15May97 02:15:31 to 15May97 02:35:33	(20 minutes, 2 seconds) at
Lat=-71.67, Lon= -34.76	
15May97 03:07:05 to 15May97 03:26:58	(19 minutes, 53 seconds) at Lat=
68.38, Lon= 127.72	
15May97 03:58:27 to 15May97 04:18:32	(20 minutes, 5 seconds) at
Lat=-64.91, Lon= -68.71	

15May97 04:50:00 to 15May97 05:09:58	(19 minutes, 58 seconds) at Lat=
61.39, Lon= 95.72	
15May97 05:41:23 to 15May97 06:01:30	(20 minutes, 7 seconds) at
Lat=-57.92, Lon= -99.27	
15May97 06:32:56 to 15May97 06:52:56	(20 minutes, 0 seconds) at Lat=
54.32, Lon= 66.09	
15May97 07:24:20 to 15May97 07:44:26	(20 minutes, 6 seconds) at
Lat=-50.92, Lon=-128.20	
15May97 08:15:53 to 15May97 08:35:53	(20 minutes, 0 seconds) at Lat=
47.22, Lon= 37.63	
15May97 09:07:18 to 15May97 09:27:22	(20 minutes, 4 seconds) at
Lat=-43.84, Lon=-156.28	
15May97 09:58:50 to 15May97 10:18:50	(20 minutes, 0 seconds) at Lat=
40.07, Lon= 9.82	
15May97 10:50:17 to 15May97 11:10:17	(20 minutes, 0 seconds) at
Lat=-36.77, Lon= 176.15	
15May97 11:41:49 to 15May97 12:01:46	(19 minutes, 57 seconds) at Lat=
32.93, Lon= -17.58	
15May97 12:33:17 to 15May97 12:53:12	(19 minutes, 55 seconds) at
Lat=-29.67, Lon= 148.89	
15May97 13:24:48 to 15May97 13:44:41	(19 minutes, 53 seconds) at Lat=
25.82, Lon= -44.72	
15May97 14:16:18 to 15May97 14:36:05	(19 minutes, 47 seconds) at
Lat=-22.65, Lon= 121.86	
15May97 15:07:48 to 15May97 15:27:35	(19 minutes, 47 seconds) at Lat=
18.75, Lon= -71.68	
15May97 15:59:19 to 15May97 16:18:59	(19 minutes, 40 seconds) at
Lat=-15.56, Lon= 94.94	
15May97 16:50:48 to 15May97 17:10:29	(19 minutes, 41 seconds) at Lat=
11.67, Lon= -98.55	
15May97 17:42:20 to 15May97 18:01:52	(19 minutes, 32 seconds) at Lat=
-8.51, Lon= 68.12	
15May97 18:33:48 to 15May97 18:53:23	(19 minutes, 35 seconds) at Lat=
4.58, Lon=-125.36	
15May97 19:25:22 to 15May97 19:44:45	(19 minutes, 23 seconds) at Lat=
-1.46, Lon= 41.33	
15May97 20:16:48 to 15May97 20:36:18	(19 minutes, 30 seconds) at Lat=
-2.57, Lon=-152.16	
15May97 21:08:23 to 15May97 21:27:38	(19 minutes, 15 seconds) at Lat=
5.60, Lon= 14.55	
15May97 21:59:48 to 15May97 22:19:12	(19 minutes, 24 seconds) at Lat=
-9.65, Lon=-178.96	
15May97 22:51:23 to 15May97 23:10:32	(19 minutes, 9 seconds) at Lat=
12.71, Lon= -12.26	
15May97 23:42:47 to 16May97 00:02:07	(19 minutes, 20 seconds) at
Lat=-16.79, Lon= 154.19	
16May97 00:34:23 to 16May97 00:53:27	(19 minutes, 4 seconds) at Lat=
19.87, Lon= -39.16	
16May97 01:25:46 to 16May97 01:45:03	(19 minutes, 17 seconds) at
Lat=-23.98, Lon= 127.23	
16May97 02:17:22 to 16May97 02:36:23	(19 minutes, 1 seconds) at Lat=
27.07, Lon= -66.18	
16May97 03:08:43 to 16May97 03:28:00	(19 minutes, 17 seconds) at
Lat=-31.20, Lon= 100.11	

16May97 04:00:20 to 16May97 04:19:19	(18 minutes, 59 seconds) at Lat=
34.26, Lon= -93.37	
16May97 04:51:41 to 16May97 05:10:57	(19 minutes, 16 seconds) at
Lat=-38.40, Lon= 72.76	
16May97 05:43:18 to 16May97 06:02:17	(18 minutes, 59 seconds) at Lat=
41.53, Lon=-120.88	
16May97 06:34:37 to 16May97 06:53:55	(19 minutes, 18 seconds) at
Lat=-45.61, Lon= 45.04	
16May97 07:26:14 to 16May97 07:45:15	(19 minutes, 1 seconds) at Lat=
48.75, Lon=-148.83	
16May97 08:17:32 to 16May97 08:36:54	(19 minutes, 22 seconds) at
Lat=-52.83, Lon= 16.70	
16May97 09:09:09 to 16May97 09:28:15	(19 minutes, 6 seconds) at Lat=
56.02, Lon=-177.58	
16May97 10:00:27 to 16May97 10:19:54	(19 minutes, 27 seconds) at
Lat=-60.02, Lon= -12.70	
16May97 10:52:04 to 16May97 11:11:15	(19 minutes, 11 seconds) at Lat=
63.17, Lon= 152.29	
16May97 11:43:22 to 16May97 12:02:53	(19 minutes, 31 seconds) at
Lat=-66.99, Lon= -44.03	
16May97 12:34:58 to 16May97 12:54:15	(19 minutes, 17 seconds) at Lat=
70.09, Lon= 119.35	
16May97 13:26:16 to 16May97 13:45:54	(19 minutes, 38 seconds) at
Lat=-73.71, Lon= -79.93	
16May97 14:17:52 to 16May97 14:37:16	(19 minutes, 24 seconds) at Lat=
76.49, Lon= 79.52	
16May97 15:09:10 to 16May97 15:28:54	(19 minutes, 44 seconds) at
Lat=-79.31, Lon=-127.27	
16May97 16:00:46 to 16May97 16:20:16	(19 minutes, 30 seconds) at Lat=
80.96, Lon= 22.24	
16May97 16:52:05 to 16May97 17:11:54	(19 minutes, 49 seconds) at
Lat=-81.45, Lon= 163.03	
16May97 17:43:40 to 16May97 18:03:17	(19 minutes, 37 seconds) at Lat=
80.42, Lon= -51.21	
16May97 18:34:59 to 16May97 18:54:53	(19 minutes, 54 seconds) at
Lat=-78.13, Lon= 98.89	
16May97 19:26:34 to 16May97 19:46:17	(19 minutes, 43 seconds) at Lat=
75.42, Lon=-104.21	
16May97 20:17:54 to 16May97 20:37:52	(19 minutes, 58 seconds) at
Lat=-72.19, Lon= 55.55	
16May97 21:09:29 to 16May97 21:29:17	(19 minutes, 48 seconds) at Lat=
68.93, Lon=-142.20	
16May97 22:00:50 to 16May97 22:20:51	(20 minutes, 1 seconds) at
Lat=-65.46, Lon= 21.19	
16May97 22:52:24 to 16May97 23:12:16	(19 minutes, 52 seconds) at Lat=
62.02, Lon=-174.43	
16May97 23:43:47 to 17May97 00:03:48	(20 minutes, 1 seconds) at
Lat=-58.55, Lon= -9.51	
17May97 00:35:20 to 17May97 00:55:14	(19 minutes, 54 seconds) at Lat=
54.97, Lon= 155.80	
17May97 01:26:44 to 17May97 01:46:45	(20 minutes, 1 seconds) at
Lat=-51.50, Lon= -38.57	
17May97 02:18:17 to 17May97 02:38:12	(19 minutes, 55 seconds) at Lat=
47.82, Lon= 127.24	

17May97 03:09:42 to 17May97 03:29:41	(19 minutes, 59 seconds) at
Lat=-44.42, Lon= -66.71	
17May97 04:01:14 to 17May97 04:21:09	(19 minutes, 55 seconds) at Lat=
40.66, Lon= 99.38	
17May97 04:52:40 to 17May97 05:12:37	(19 minutes, 57 seconds) at
Lat=-37.29, Lon= -94.33	
17May97 05:44:12 to 17May97 06:04:05	(19 minutes, 53 seconds) at Lat=
33.53, Lon= 71.95	
17May97 06:35:40 to 17May97 06:55:32	(19 minutes, 52 seconds) at
Lat=-30.19, Lon=-121.60	
17May97 07:27:10 to 17May97 07:47:01	(19 minutes, 51 seconds) at Lat=
26.36, Lon= 44.78	
17May97 08:18:39 to 17May97 08:38:26	(19 minutes, 47 seconds) at
Lat=-23.12, Lon=-148.66	
17May97 09:10:09 to 17May97 09:29:57	(19 minutes, 48 seconds) at Lat=
19.18, Lon= 17.78	
17May97 10:01:39 to 17May97 10:21:21	(19 minutes, 42 seconds) at
Lat=-15.97, Lon=-175.60	
17May97 10:53:08 to 17May97 11:12:52	(19 minutes, 44 seconds) at Lat=
12.04, Lon= -9.10	
17May97 11:44:40 to 17May97 12:04:15	(19 minutes, 35 seconds) at Lat=
-8.86, Lon= 157.56	
17May97 12:36:07 to 17May97 12:55:47	(19 minutes, 40 seconds) at Lat=
4.89, Lon= -35.92	
17May97 13:27:40 to 17May97 13:47:09	(19 minutes, 29 seconds) at Lat=
-1.75, Lon= 130.76	
17May97 14:19:06 to 17May97 14:38:42	(19 minutes, 36 seconds) at Lat=
-2.26, Lon= -62.72	
17May97 15:10:40 to 17May97 15:30:03	(19 minutes, 23 seconds) at Lat=
5.36, Lon= 103.97	
17May97 16:02:05 to 17May97 16:21:37	(19 minutes, 32 seconds) at Lat=
-9.41, Lon= -89.54	
17May97 16:53:40 to 17May97 17:12:58	(19 minutes, 18 seconds) at Lat=
12.53, Lon= 77.14	
17May97 17:45:04 to 17May97 18:04:33	(19 minutes, 29 seconds) at
Lat=-16.60, Lon=-116.40	
17May97 18:36:39 to 17May97 18:55:53	(19 minutes, 14 seconds) at Lat=
19.69, Lon= 50.25	
17May97 19:28:02 to 17May97 19:47:29	(19 minutes, 27 seconds) at
Lat=-23.79, Lon=-143.36	
17May97 20:19:38 to 17May97 20:38:49	(19 minutes, 11 seconds) at Lat=
26.90, Lon= 23.23	
17May97 21:11:00 to 17May97 21:30:26	(19 minutes, 26 seconds) at
Lat=-31.02, Lon=-170.48	
17May97 22:02:36 to 17May97 22:21:46	(19 minutes, 10 seconds) at Lat=
34.14, Lon= -3.97	
17May97 22:53:57 to 17May97 23:13:23	(19 minutes, 26 seconds) at
Lat=-38.21, Lon= 162.18	
17May97 23:45:33 to 18May97 00:04:43	(19 minutes, 10 seconds) at Lat=
41.35, Lon= -31.45	
18May97 00:36:53 to 18May97 00:56:21	(19 minutes, 28 seconds) at
Lat=-45.43, Lon= 134.47	
18May97 01:28:30 to 18May97 01:47:41	(19 minutes, 11 seconds) at Lat=
48.57, Lon= -59.39	

18May97 02:19:49 to 18May97 02:39:20	(19 minutes, 31 seconds) at
Lat=-52.66, Lon= 106.15	
18May97 03:11:26 to 18May97 03:30:40	(19 minutes, 14 seconds) at Lat=
55.79, Lon= -88.08	
18May97 04:02:45 to 18May97 04:22:18	(19 minutes, 33 seconds) at
Lat=-59.74, Lon= 76.87	
18May97 04:54:22 to 18May97 05:13:39	(19 minutes, 17 seconds) at Lat=
62.89, Lon=-118.10	
18May97 05:45:40 to 18May97 06:05:17	(19 minutes, 37 seconds) at
Lat=-66.72, Lon= 45.64	
18May97 06:37:17 to 18May97 06:56:38	(19 minutes, 21 seconds) at Lat=
69.77, Lon=-150.80	
18May97 07:28:35 to 18May97 07:48:17	(19 minutes, 42 seconds) at
Lat=-73.40, Lon= 10.12	
18May97 08:20:12 to 18May97 08:39:38	(19 minutes, 26 seconds) at Lat=
76.16, Lon= 170.03	
18May97 09:11:30 to 18May97 09:31:16	(19 minutes, 46 seconds) at
Lat=-79.05, Lon= -36.14	
18May97 10:03:07 to 18May97 10:22:38	(19 minutes, 31 seconds) at Lat=
80.81, Lon= 114.13	
18May97 10:54:26 to 18May97 11:14:15	(19 minutes, 49 seconds) at
Lat=-81.49, Lon=-104.40	
18May97 11:46:02 to 18May97 12:05:37	(19 minutes, 35 seconds) at Lat=
80.66, Lon= 41.17	
18May97 12:37:21 to 18May97 12:57:13	(19 minutes, 52 seconds) at
Lat=-78.49, Lon=-169.80	
18May97 13:28:57 to 18May97 13:48:37	(19 minutes, 40 seconds) at Lat=
75.86, Lon= -13.50	
18May97 14:20:17 to 18May97 14:40:12	(19 minutes, 55 seconds) at
Lat=-72.65, Lon= 145.81	
18May97 15:11:52 to 18May97 15:31:36	(19 minutes, 44 seconds) at Lat=
69.48, Lon= -52.08	
18May97 16:03:13 to 18May97 16:23:10	(19 minutes, 57 seconds) at
Lat=-66.01, Lon= 111.11	
18May97 16:54:48 to 18May97 17:14:35	(19 minutes, 47 seconds) at Lat=
62.59, Lon= -84.61	
18May97 17:46:10 to 18May97 18:06:07	(19 minutes, 57 seconds) at
Lat=-59.11, Lon= 80.22	
18May97 18:37:44 to 18May97 18:57:33	(19 minutes, 49 seconds) at Lat=
55.56, Lon=-114.52	
18May97 19:29:07 to 18May97 19:49:04	(19 minutes, 57 seconds) at
Lat=-52.07, Lon= 51.07	
18May97 20:20:40 to 18May97 20:40:31	(19 minutes, 51 seconds) at Lat=
48.41, Lon=-143.15	
18May97 21:12:05 to 18May97 21:32:01	(19 minutes, 56 seconds) at
Lat=-44.94, Lon= 22.85	
18May97 22:03:37 to 18May97 22:23:28	(19 minutes, 51 seconds) at Lat=
41.26, Lon=-171.05	
18May97 22:55:03 to 18May97 23:14:57	(19 minutes, 54 seconds) at
Lat=-37.82, Lon= -4.80	
18May97 23:46:35 to 19May97 00:06:25	(19 minutes, 50 seconds) at Lat=
34.07, Lon= 161.47	
19May97 00:38:01 to 19May97 00:57:52	(19 minutes, 51 seconds) at
Lat=-30.71, Lon= -32.09	

19May97 01:29:32 to 19May97 01:49:21	(19 minutes, 49 seconds) at Lat=
26.91, Lon= 134.29	
19May97 02:21:01 to 19May97 02:40:47	(19 minutes, 46 seconds) at
Lat=-23.58, Lon= -59.18	
19May97 03:12:30 to 19May97 03:32:18	(19 minutes, 48 seconds) at Lat=
19.66, Lon= 107.26	
19May97 04:04:00 to 19May97 04:23:42	(19 minutes, 42 seconds) at
Lat=-16.44, Lon= -86.12	
19May97 04:55:29 to 19May97 05:15:14	(19 minutes, 45 seconds) at Lat=
12.46, Lon= 80.36	
19May97 05:46:59 to 19May97 06:06:37	(19 minutes, 38 seconds) at Lat=
-9.27, Lon=-112.98	
19May97 06:38:27 to 19May97 06:58:10	(19 minutes, 43 seconds) at Lat=
5.26, Lon= 53.52	
19May97 07:29:59 to 19May97 07:49:32	(19 minutes, 33 seconds) at Lat=
-2.10, Lon=-139.79	
19May97 08:21:25 to 19May97 08:41:05	(19 minutes, 40 seconds) at Lat=
-1.89, Lon= 26.72	
19May97 09:12:58 to 19May97 09:32:27	(19 minutes, 29 seconds) at Lat=
5.07, Lon=-166.60	
19May97 10:04:23 to 19May97 10:24:02	(19 minutes, 39 seconds) at Lat=
-9.16, Lon= -0.11	
19May97 10:55:57 to 19May97 11:15:23	(19 minutes, 26 seconds) at Lat=
12.30, Lon= 166.56	
19May97 11:47:21 to 19May97 12:06:58	(19 minutes, 37 seconds) at
Lat=-16.36, Lon= -26.98	
19May97 12:38:56 to 19May97 12:58:18	(19 minutes, 22 seconds) at Lat=
19.46, Lon= 139.67	
19May97 13:30:19 to 19May97 13:49:54	(19 minutes, 35 seconds) at
Lat=-23.55, Lon= -53.94	
19May97 14:21:54 to 19May97 14:41:15	(19 minutes, 21 seconds) at Lat=
26.72, Lon= 112.65	
19May97 15:13:17 to 19May97 15:32:51	(19 minutes, 34 seconds) at
Lat=-30.77, Lon= -81.05	
19May97 16:04:52 to 19May97 16:24:11	(19 minutes, 19 seconds) at Lat=
33.90, Lon= 85.46	
19May97 16:56:14 to 19May97 17:15:49	(19 minutes, 35 seconds) at
Lat=-38.03, Lon=-108.40	
19May97 17:47:50 to 19May97 18:07:08	(19 minutes, 18 seconds) at Lat=
41.11, Lon= 57.99	
19May97 18:39:10 to 19May97 18:58:46	(19 minutes, 36 seconds) at
Lat=-45.20, Lon=-136.08	
19May97 19:30:47 to 19May97 19:50:06	(19 minutes, 19 seconds) at Lat=
48.34, Lon= 30.08	
19May97 20:22:07 to 19May97 20:41:44	(19 minutes, 37 seconds) at
Lat=-52.37, Lon=-164.34	
19May97 21:13:44 to 19May97 21:33:04	(19 minutes, 20 seconds) at Lat=
55.50, Lon= 1.45	
19May97 22:05:03 to 19May97 22:24:42	(19 minutes, 39 seconds) at
Lat=-59.45, Lon= 166.43	
19May97 22:56:40 to 19May97 23:16:02	(19 minutes, 22 seconds) at Lat=
62.54, Lon= -28.46	
19May97 23:47:59 to 20May97 00:07:41	(19 minutes, 42 seconds) at
Lat=-66.44, Lon= 135.30	

20May97 00:39:36 to 20May97 00:59:01	(19 minutes, 25 seconds) at Lat=
69.44, Lon= -60.97	
20May97 01:30:55 to 20May97 01:50:39	(19 minutes, 44 seconds) at
Lat=-73.05, Lon= 100.24	
20May97 02:22:32 to 20May97 02:42:00	(19 minutes, 28 seconds) at Lat=
75.82, Lon= -99.51	
20May97 03:13:50 to 20May97 03:33:38	(19 minutes, 48 seconds) at
Lat=-78.79, Lon= 54.90	
20May97 04:05:27 to 20May97 04:24:59	(19 minutes, 32 seconds) at Lat=
80.62, Lon=-153.73	
20May97 04:56:46 to 20May97 05:16:36	(19 minutes, 50 seconds) at
Lat=-81.50, Lon= -11.83	
20May97 05:48:23 to 20May97 06:07:58	(19 minutes, 35 seconds) at Lat=
80.85, Lon= 133.33	
20May97 06:39:42 to 20May97 06:59:34	(19 minutes, 52 seconds) at
Lat=-78.80, Lon= -78.62	
20May97 07:31:18 to 20May97 07:50:57	(19 minutes, 39 seconds) at Lat=
76.28, Lon= 77.29	
20May97 08:22:39 to 20May97 08:42:32	(19 minutes, 53 seconds) at
Lat=-73.11, Lon=-123.88	
20May97 09:14:14 to 20May97 09:33:55	(19 minutes, 41 seconds) at Lat=
70.02, Lon= 38.07	
20May97 10:05:35 to 20May97 10:25:29	(19 minutes, 54 seconds) at
Lat=-66.55, Lon=-158.94	
20May97 10:57:10 to 20May97 11:16:54	(19 minutes, 44 seconds) at Lat=
63.17, Lon= 5.23	
20May97 11:48:32 to 20May97 12:08:27	(19 minutes, 55 seconds) at
Lat=-59.62, Lon= 169.92	
20May97 12:40:07 to 20May97 12:59:52	(19 minutes, 45 seconds) at Lat=
56.14, Lon= -24.83	
20May97 13:31:29 to 20May97 13:51:24	(19 minutes, 55 seconds) at
Lat=-52.58, Lon= 140.68	
20May97 14:23:03 to 20May97 14:42:50	(19 minutes, 47 seconds) at Lat=
49.00, Lon= -53.54	
20May97 15:14:27 to 20May97 15:34:20	(19 minutes, 53 seconds) at
Lat=-45.51, Lon= 112.43	
20May97 16:06:00 to 20May97 16:25:47	(19 minutes, 47 seconds) at Lat=
41.86, Lon= -81.49	
20May97 16:57:25 to 20May97 17:17:16	(19 minutes, 51 seconds) at
Lat=-38.39, Lon= 84.75	
20May97 17:48:57 to 20May97 18:08:44	(19 minutes, 47 seconds) at Lat=
34.67, Lon=-108.99	
20May97 18:40:23 to 20May97 19:00:12	(19 minutes, 49 seconds) at
Lat=-31.24, Lon= 57.42	
20May97 19:31:54 to 20May97 19:51:41	(19 minutes, 47 seconds) at Lat=
27.45, Lon=-136.20	
20May97 20:23:22 to 20May97 20:43:08	(19 minutes, 46 seconds) at
Lat=-24.05, Lon= 30.31	
20May97 21:14:52 to 20May97 21:34:38	(19 minutes, 46 seconds) at Lat=
20.20, Lon=-163.24	
20May97 22:06:20 to 20May97 22:26:04	(19 minutes, 44 seconds) at
Lat=-16.84, Lon= 3.34	
20May97 22:57:49 to 20May97 23:17:35	(19 minutes, 46 seconds) at Lat=
12.95, Lon= 169.84	

20May97 23:49:19 to 21May97 00:08:59	(19 minutes, 40 seconds) at Lat=-9.68, Lon= -23.52
21May97 00:40:47 to 21May97 01:00:31	(19 minutes, 44 seconds) at Lat=5.74, Lon= 142.99
21May97 01:32:18 to 21May97 01:51:55	(19 minutes, 37 seconds) at Lat=-2.45, Lon= -50.35
21May97 02:23:45 to 21May97 02:43:28	(19 minutes, 43 seconds) at Lat=-1.53, Lon= 116.17
21May97 03:15:17 to 21May97 03:34:50	(19 minutes, 33 seconds) at Lat=4.72, Lon= -77.15
21May97 04:06:42 to 21May97 04:26:25	(19 minutes, 43 seconds) at Lat=-8.80, Lon= 89.33
21May97 04:58:15 to 21May97 05:17:46	(19 minutes, 31 seconds) at Lat=11.95, Lon=-103.99
21May97 05:49:40 to 21May97 06:09:21	(19 minutes, 41 seconds) at Lat=-16.00, Lon= 62.47
21May97 06:41:14 to 21May97 07:00:42	(19 minutes, 28 seconds) at Lat=19.16, Lon=-130.89
21May97 07:32:37 to 21May97 07:52:18	(19 minutes, 41 seconds) at Lat=-23.25, Lon= 35.50

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Average percentage of time with mutual visibility is 38%

I hope this is what you're after.

Cheers

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EXHIBIT 2

5(d). Station Location:

- (1) U.S.
Area of Operation: Polar Orbit
- (2) Boston (Middlesex), MA - NL 42-21-46; WL 071-08-36

In the course of preparing the instant renewal application, it was discovered that in January, 1996, the location of Satellife's fixed location terminal/transmitter ("ground site") was relocated from Cambridge, Massachusetts to Boston, Massachusetts in connection with the relocation of the offices of Satellife, Inc. at that time. Counsel to Satellife is in the process of preparing a modification application to reflect this change in location, which will be filed promptly. For purposes of the renewal application, the coordinates of the relocated ground site are as set forth above.

9. No Environmental Assessment Required under 47 C.F.R. § 1.1311

No environmental assessment is required under Section 1.1311 of the Commission's rules (47 C.F.R. § 1.1311) because the satellite and ground site operated under the license for which renewal is sought are not facilities for which environmental assessments must be prepared under Section 1.1307 of the rules (47 C.F.R. § 1.1307). Specifically, the satellite and ground site for which a renewal license is sought are not facilities that "may significantly affect the environment" under Section 1.1307(a). Likewise, the satellite and ground site are not facilities that "would cause human exposure to levels of radiofrequency radiation in excess of the limits in §§ 1.1310 and 2.1093," and thus do not fall within the ambit of Section 1.1307(b).