SERVICE DESCRIPTION - GENERAL TERMS AND CONDITIONS

Article 1. Definitions and Interpretation

- A. "Approved Channel" shall mean a Channel that as been approved by IsoTropic as evidenced by a duly executed Service Order and associated with one (1) IsoTropic specified NetModem with its unique identifier (ID) included in each Satellite Terminal.
- B. "Channel(s)" shall mean a shared TDM outbound channel associated with a shared TDMA inbound channel with predefined burstable Nominal Channel Capacity (data rates) utilizing shared network resources and if applicable, CIR which interconnects Satellite Terminals and the Hub.
- C. "End Date" shall mean the latest date that a Service may end for an Approved Channel that is three hundred and sixty five (365) days from the Start Date.
- D. "Hub" shall mean IsoTropic's centralized satellite earth station facility or facilities including its TDM/TDMA gateway system.
- E. "Inbound Carrier" shall mean the shared TDMA Ku-Band satellite link that interconnects Satellite Terminal(s) to the Hub.
- F. "Inbound Channel(s)" shall mean a shared virtual TDMA channel with a predefined Nominal Channel Capacity carrying end-users data traffic from a specific Satellite Terminal to the Hub.
- G. "Interruption" shall mean any period during which the Service fails to meet the Service Performance Specifications defined in Article 3 and as a result cannot be used by Customer as contemplated by this Agreement.
- H. "NetModem" shall mean IsoTropic-specified and Customer owned/operated TDM/TDMA family satellite modems including its hardware, circuit boards, components, assemblies, software, and firmware components (collectively "NetModem") that is manufactured by iDirect, Inc. and based on iDirect, Inc. technology.
- I. "NetModem Software" shall mean software associated with a NetModem.
- J. "NetModem Software Maintenance" shall mean applicable updates, enhancements, and upgrades of NetModem Software performed by the Hub or NOC through downloads to NetModem via a satellite channel that may, from time to time, be required to maintain NetModem(s).
- K. "Network Operations Center" ("NOC") shall mean IsoTropic's network operation and support center for the Service.
- L. "Network Management System" ("NMS") shall mean the system located at IsoTropic's Hub which controls, manages, and tracks usage of IsoTropic's demand assigned disaster recovery network.
- M. "Nominal Channel Capacity" shall mean the predefined burstable data rates for each Inbound Channel and Outbound Channel. Actual Channel throughput may vary around the nominal Channel capacity depending on the Satellite Terminal location and characteristics, these being the sole responsibility of Customer, and network loading.
- N. "Outbound Carrier" shall mean the shared TDM satellite link that interconnects the Hub to Satellite Terminal(s).
- O. "Outbound Channel(s)" shall mean a shared virtual TDM channel with a predefined Nominal Channel Capacity carrying Customer data traffic from the Hub to a specific Satellite Terminal.
- P. "Outage Unit" means an Interruption for a period of fifteen (15) minutes or more for which a credit is granted pursuant to this Article 20. If the Service is broken down into two (2) or more carriers in this Agreement, then the credit will be prorated as per the affected carrier(s).
- Q. "Protected Service" shall mean that in the case of a Transponder Failure and/or Satellite Failure during a Service Event, IsoTropic shall restore the Approved Channel on another transponder on the same satellite (if available) and if not available, or in the event of a Satellite Failure, on another satellite (if available). In any such event(s), there may be a change to the frequency and/or polarization of the Transponder and orbital location of the Satellite used for such restoration of the Approved Channel.
- R. "Satellite" means the IsoTropic-designated communications spacecraft used to provide the Service to Customer. When used in the lower case, "satellite" means a communications satellite in general.
- S. "Satellite Failure" means a satellite on which one or more of the basic subsystems fail, rendering the use of the satellite for its intended purposes IsoTropic impractical, as determined by IsoTropic in its reasonable business judgment, or on which more than one-half of the transponders are transponder failures and that IsoTropic has declared a failure. For purposes of this definition, a hybrid satellite with multiple frequency band payloads shall be treated, at IsoTropic's option, either (i) as a single satellite or (ii) as though the separate frequency band payloads were located on separate satellites.
- T. "Satellite Terminal" shall mean Customer-owned and operated fixed, transportable, or mobile satellite earth station that is accessing IsoTropic provided demand assigned recovery service and using satellite channels assigned and configured by IsoTropic. A Satellite Terminal shall include an earth station antenna unit, low noise block down converter (LNB), block upconverter (BUC), IsoTropic-specified satellite modem(s) and all associated firmware and software packages.
- U. "Service Event" shall mean the time period during which Customer is accessing an Approved Channel.
- V. "Start Date" shall mean the earliest date that Customer may initiate a Service for an Approved Channel through a Service Order Form.

- W. "Time Division Multiplex" ("TDM") shall mean the technology that multiplexes multiple data streams from the Hub to Satellite Terminals in a single aggregated data channel.
- X. "Time Division Multiple Access" ("TDMA") shall mean the technology of utilizing (sharing) a single carrier (TDMA Carrier) by multiple Satellite Terminals in a time divisional manner to transmit data from Satellite Terminals to Hub.
- Y. "Transponder" means an IsoTropic-designated radio frequency transmission channel on the Satellite used to provide service to Customer. When used in the lower case, "transponder" means a radio frequency transmission channel on a communications satellite in general.
- Z. "Transponder Failure" means, with respect to any Transponder used to provide service to Customer under this Agreement, any of the following events: (i) such Transponder fails to meet the Service Performance Specifications, as set forth herein, in any material respect for any period of five (5) consecutive days; (ii) twenty (20) or more creditable Interruptions of fifteen (15) minutes or more in duration shall occur within any ninety (90) consecutive days; or (iii) such Transponder shall fail to meet the Service Performance Specifications in any material respect for any period of time under circumstances that make it clearly ascertainable or predictable, based on satellite industry engineering standards, that a failure set forth in (i) or (ii) above will occur. For purpose of this definition, measurement of periods of failure hereunder shall commence when Customer has vacated its signal to permit verification of the existence of the failure by IsoTropic.

Article 2. Service

IsoTropic will provide to Customer, Shared Network Protected Service consisting of satellite Channel(s) interconnecting the IsoTropic Hub to Customer-owned and operated Satellite Terminals within the Continental United States (CONUS) or other satellite coverage areas as may be agreed between the parties through the execution of Service Orders found in Schedule 4 (the "Service"). Further, the Service will include space segment resources, network management services, and NetModem(s) Software Maintenance. The Service may be provided to subsidiaries of Customer at Customer's request.

The Service is exclusive of any additional services including, but not limited to: Internet access connectivity; terrestrial networking and communications equipment; routers; virtual private network (VPN) equipment; switches; and firewalls that Customer may deem necessary for Customer's use of the Service.

Article 3. Service Performance Specifications

Using IsoTropic recommended Satellite Terminal parameters, the Approved Channel performance parameters shall have a Bit Error Rate ("BER") of 1x10-7 with an average annual link availability of 99.5%, excluding any performance failures associated with Customer-provided equipment and/or Satellite Terminals. Customer acknowledges that utilization of an Approved shared Channel to its fullest extent (Nominal Channel Capacity) and satellite link performance is a function of Satellite Terminal characteristics, including antenna size, BUC power and Satellite Terminal location. Customer shall be responsible for optimal sizing of the Satellite Terminal(s) for the above specified channel performance characteristics. IsoTropic will perform a link analysis and will recommend optimal antenna size and BUC power upon Customer's request and at no additional charge. Such information is provided for information purposes only and is not provided as a performance obligation of this Agreement.

Article 4. Provision and Use of the Service

- A. IsoTropic shall advise Customer as to whether the requested Channel is available within five (5) days of receipt of the Service Order from Customer. Either party shall be under no obligation to the other for any Service Order until duly executed. The IsoTropic designated satellite, transponder, polarization and orbital location information will be provided to Customer upon Service Order execution. IsoTropic reserves the right to change the assigned satellite, transponder, polarization, and orbital location and in the event of such a change, IsoTropic will provide Customer with at least ten (10) business days advance notice.
- B. A Service Event shall commence on an Approved Channel, within a maximum of four (4) hours after Customer initiates the Access Procedures of Schedule 2.
- C. Location and operation of the Satellite, IsoTropic's satellite system and IsoTropic's ability to perform are subject to all applicable laws and regulations of governmental authority.
- D. IsoTropic shall have sole and exclusive control of operation of the Satellite. If circumstances occur which in IsoTropic's reasonable judgment pose a threat to the stable operation of the Satellite, IsoTropic shall have the right to take action it reasonably believes necessary to protect the Satellite, including discontinuance or suspension of operation of the Satellite, the Transponder(s) or any other transponder, without any liability to Customer, except that Customer may receive a credit computed as provided hereunder. IsoTropic shall give Customer as much notice as practical under the circumstances of any such discontinuance, suspension or interruption.
- E. Customer will use, and will cause others authorized or permitted by Customer to access Service ("Customer's Designees") to use the Service in accordance with (i) all applicable laws and (ii) the conditions of use (as such may, upon notice, be amended for technical or operational reasons) contained in Schedule 2. Customer shall obtain, maintain in force and comply with any and all licenses, approvals, authorizations and consents necessary or appropriate relating to Customer's use of the Service and the transmission and/or reception of material, signals and programming thereon. If Customer's or Customer's Designees' non-compliance with the preceding two (2) sentences causes, or other circumstances arise which cause, interference or threaten the availability or operation of the services or facilities provided by IsoTropic, or if Customer's or Customer's Designees' use of Service

may reasonably result in the institution of criminal proceedings, or administrative proceedings that may result in sanctions or other non-monetary remedies, against IsoTropic or any affiliates of either entity, IsoTropic may take actions (including suspension and/or restriction of Service) it reasonably believes necessary to ensure Customer's compliance with the User's Guide of Schedule 1 or IsoTropic's compliance with law. During the term of this Agreement, neither Customer nor any of Customer's Designees shall create nor suffer to exist any claims, liens, encumbrances or security interests on or to the Service, or component thereof, nor purport to do any of the same.

F. Customer is responsible for providing, operating and maintaining the equipment necessary to access the Satellite and Service, except as may be described herein as being the responsibility of IsoTropic. Customer at its expense shall provide IsoTropic with any descrambling, decoding devices, or any other equipment which may be required for signal monitoring at the IsoTropic facilities. At a mutually agreed time, and prior to Customer transmitting from Customer's earth station(s), Customer will demonstrate to IsoTropic's designated Technical Operations Center that its Satellite Terminal(s) comply with the technical specifications contained in Schedule 1.

Article 5. Suspension of Service by IsoTropic

IsoTropic may (without prejudice to any other right or remedy) suspend the Service: on giving the Customer twenty four (24) hours written notice if IsoTropic does not receive payment when due within twenty four (24) hours of receiving such notice; immediately by written notice if Customer commits a material breach of this Agreement; or immediately upon written notice if any of the events which are grounds for suspension under Article 4.D. or E. occur. Suspension will continue until the grounds for suspension are removed to IsoTropic's reasonable satisfaction or IsoTropic terminates the Agreement. Except in the case of suspension under Article 4.D., Customer remains liable to pay all charges during any period of suspension and, for the avoidance of doubt, no credits are payable by IsoTropic to Customer for any such period of suspension.

Article 6. Termination

In addition to any rights of termination provided in this Agreement, either party may terminate this Agreement by giving the other party written notice thereof in the event (i) the non-terminating party materially breaches this Agreement and fails to cure such breach within thirty (30) days after receipt of written notice thereof (except that, if Customer fails to pay amounts due hereunder, such cure period shall be reduced to ten (10) days); or (ii) the non-terminating party is unable to perform its obligations as a result of becoming insolvent or being unable to pay its debts as and when they fall due or ceasing or threatening to cease the whole or substantially the whole of its business or becoming the subject of insolvency proceedings, including without limitation, if the non-terminating party is judicially declared insolvent or bankrupt, or if any assignment is made of the non-terminating party's property for the benefit of its creditors or if a receiver, conservator, trustee in bankruptcy, administrator or other similar officer is appointed by a court of competent jurisdiction or chargeholder to take charge of all or any substantial part of the non-terminating party's property, or if a petition is filed by or against the non-terminating party to commence a winding up (and such petition is not dismissed within sixty (60) days after filing) or a resolution is passed by its shareholders to wind up the non-terminating party or any similar action or proceedings are commenced in any country with jurisdiction over the non-terminating party; or (iii) an Interruption continues for thirty (30) consecutive days and the sole cause of the Interruption is a force majeure event.

Additionally, Customer may terminate this Agreement upon ten (10) days prior written notice if for any consecutive twelve (12) month period the Service fails to achieve the average annual availability stated in Article 3. This right to terminate shall expire if not exercised within thirty (30) days after the end of the applicable twelve (12) month period. For purposes of this Agreement, satellite link availability is defined as follows:

Availability = 100% - Unavailability. For purposes of the availability definition above, unavailability is defined as follows: Unavailability = (total minutes of Outage Units for a consecutive 12 month period ÷ 525.600) x 100%.

Article 6a. Early Termination

Subject to Article 6 (Termination) hereof, no early termination date is provided under this Agreement. Therefore in the event CUSTOMER orders the discontinuance of the Service effective on any date prior to the termination date set forth in Article 1 (End Date) of the Service Description, or if this Agreement is terminated by IsoTropic due to CUSTOMER's breach with respect to the Service provided under this Agreement prior to the termination date set forth in Article 1 (End Date) of the Service Description, an early termination charge (Early Termination Charge) shall apply as follows: The Early Termination Charge shall be an amount equal to the lesser of (i) the aggregate monthly rate then in effect for twelve (12) months of Service on the affected space segment(s) or (ii) the aggregate rate for service through the term of service for the affected space segment(s). Early Termination Charges shall be due and payable upon receipt by CUSTOMER of an invoice for such charges. Early termination charges apply regardless of whether or not service has begun and are in addition to any other rights IsoTropic may have hereunder.

Article 7. Effect of Termination

In the event of termination by IsoTropic pursuant to Article 5 (i) and/or (ii), IsoTropic shall be entitled to retain all amounts paid by Customer to IsoTropic hereunder and any credits that may be due to Customer shall be forfeited; and recover from Customer an amount equal to the net present value (as of the date of such termination) of the remaining unpaid Service charges, computed as if this Agreement remained in effect until the End Date, utilizing a discount rate of 5% per annum plus late charges on such amount from the date of termination until payment in full ("Termination Value").

Article 8. Force Majeure

Neither party will be liable to the other by reason of any failure in performance of this Agreement if the failure arises out of acts of God, acts of government authority, strikes or other labor disturbances, or any other cause beyond the reasonable control of that party. In no event will failure to make payment when due be excused by a force majeure event.

Article 9. Indemnification

Customer shall indemnify and hold harmless IsoTropic Networks, Inc., and any affiliates or subsidiaries of either entity, from and against all loss, liability, cost, expenses and damages of any nature (including, but not limited to, attorney fees and to the extent permitted by law, any fines and penalties) based on third party claims (including those of Customer's Designees) arising out of, resulting from or in connection with any failure to provide Service or any use of Service provided hereunder.

Article 10. Warranty Disclaimer; Limitation of Liability

- A. No warranties, express, implied, or statutory, including any warranty of merchantability or fitness for a particular purpose, apply to Service provided hereunder or the equipment and facilities used to provide Service. The conveying by IsoTropic of proprietary information or other information to Customer shall in no way alter this disclaimer.
- B. As a material condition of entering into this Agreement under the charges specified herein, and in regard to any and all causes arising out of or relating to this Agreement, including but not limited to claims of negligence, breach of contract or warranty, failure of a remedy to accomplish its essential purpose or otherwise, Customer agrees that IsoTropic Networks, Inc., and its affiliates' or subsidiaries' entire liability shall be limited to a waiver of the applicable charges equivalent to twenty four (24) hours of Usage Charges in Schedule 4.
- C. Customer agrees that in no event shall IsoTropic Networks, Inc., or affiliated or subsidiary companies of either entity or the manufacturer or launch service provider of the Satellite be liable for any indirect, incidental, consequential, punitive, special or other similar damages (whether in contract, tort (including negligence), strict liability or under any other theory of liability), including but not limited to, loss of actual or anticipated revenues or profits, loss of business, customers or good will, or damages and expenses arising out of third party claims.

Article 11. Confidentiality and Nondisclosure

- A. Customer hereby agrees not to disclose to third parties (without the prior written consent of IsoTropic) the material terms and conditions of this Agreement and all information provided to Customer related to the design and performance characteristics of the Satellite, the Transponder, terrestrial system or any subsystems or components thereof. To the extent that either party discloses to the other any other information which it considers proprietary, said party shall identify such information as proprietary when disclosing it to the other party by marking it clearly and conspicuously as proprietary information. Any proprietary disclosure to either party, if made orally, shall be identified as proprietary information at the time of disclosure and promptly thereafter confirmed in writing and identified as proprietary information, if the disclosing party wishes to keep such information proprietary under this Agreement. Any such information disclosed under this Agreement shall be used by the recipient thereof only in its performance under this Agreement.
- B. Neither party shall be liable for the inadvertent or accidental disclosure of such information marked as proprietary, if such disclosure occurs despite the exercising of the same degree of care as the receiving party normally takes to preserve and safeguard its own proprietary information (but not less than reasonable care) or if such information (i) is or becomes lawfully available to the public from a source other than the receiving party before or during the period of this Agreement; (ii) is released in writing by the disclosing party without restrictions; (iii) is lawfully obtained by the receiving party from a third party or parties without obligation of confidentiality; (iv) is lawfully known by the receiving party prior to such disclosure; or (v) is at any time lawfully developed by the receiving party completely independently of any such disclosure or disclosures from the disclosing party. In addition, neither party shall be liable for the disclosure of any proprietary information which it receives under this Agreement pursuant to judicial action or decree, or pursuant to any requirement of any Government or any agency or department thereof, having jurisdiction over such party, provided that in the reasonable opinion of counsel for such party such disclosure is required, and provided further that such party to the extent reasonably practical shall have given the other party notice prior to such disclosure.

Article 12. No Implied License; No Third Party Rights; No Fiduciary Relationship

The provision of services or the conveying of any information under this Agreement shall not convey any license by implication, estoppel or otherwise, under any patents or other intellectual property rights of Customer or IsoTropic Networks, Inc.., and their affiliates, subsidiaries, contractors and vendors. Nothing contained in this Agreement shall be deemed or construed by the parties or by any third party to create any rights, obligations or interests in third parties; or to create the relationship of principal and agent, partnership or joint venture or any other fiduciary relationship or association between the parties.

Article 13. No Waiver; Remedies Cumulative

No waiver, alteration, or modification of any of the terms of this Agreement will be binding unless in writing and signed by both parties. All remedies and rights hereunder and those available in law or in equity shall be cumulative and the exercise by a party of any such right or remedy shall not preclude the exercise of any other right or remedy available under this Agreement in law or in equity.

Article 14. Costs and Attorneys' Fees

In addition to all other amounts payable under this Agreement, subject to resolution of any dispute and in accordance with the outcome of such dispute, the prevailing Party shall be entitled to recover from the other Party (i) costs of collection (including a dispute concerning collection) of any such amounts, including reasonable attorneys' fees and disbursements and (ii) costs, including reasonable attorneys' fees and disbursements, incurred in seeking to prevent use of Service contrary to the terms of this Agreement (or a dispute in respect of such).

Article 15. Governing Law and Jurisdiction

This Agreement shall be construed and enforced in accordance with the laws of the State of Wisconsin, excluding its conflicts of law rules. The parties hereby consent to and submit to the exclusive jurisdiction of the federal and state courts located in the State of Wisconsin, and any action or suit under this Agreement shall be brought by the parties in any federal or state court established or sitting in the State of Wisconsin with appropriate jurisdiction over the subject matter; however IsoTropic shall have the right to bring an claim against Customer before any other court having jurisdiction. The parties shall not raise in connection therewith, and hereby waive, any defenses based upon venue, inconvenience of the forum, lack of personal jurisdiction, sufficiency of service of process (as long as notice of such action or suit is furnished in accordance with this Agreement) or the like in any such action or suit.

Article 16. Statute of Limitations; Jury Waiver

Any action of any kind by either party arising out of this Agreement must be commenced within two (2) years from the date the right, claim, demand or cause of action shall first arise. Each of the parties hereby irrevocably waives (and agrees not to assert) the right to trial by jury in any such action.

Article 17. Headings; Severability; Customer Purchase Orders

All titles and headings in this Agreement are for reference purposes only; they will not affect the meaning or construction of the terms of this Agreement. If any part or parts of this Agreement are held to be invalid, the remaining parts of the Agreement will continue to be valid and enforceable. Customer agrees that any purchase order or other similar document that Customer may issue in connection with this Agreement will be for Customer's internal purposes only and, therefore, even if acknowledged by IsoTropic, will not in any way add to, subtract from, or in any way modify the terms and conditions of this Agreement.

Article 18. Assignment and Other Third Party Use

Customer's obligations under this Agreement may not be assigned or otherwise transferred to any third party without IsoTropic's prior written consent to such assignment or transfer, which consent shall not be unreasonably withheld or delayed. IsoTropic's consent may be reasonably withheld if Customer fails to establish to IsoTropic's satisfaction the ability of the prospective assignee or transferee to meet Customer's obligations under this Agreement, including without limitation (a) the conditions in Article 3 and (b) Customer's financial commitments. Notwithstanding the foregoing, Customer may assign this Agreement to an affiliate of Customer, provided that Customer shall not be relieved of its obligations under this Agreement.

Customer is authorized to allow third parties to access use of the Service, subject to the rights and requirements of this paragraph. Customer shall provide IsoTropic with at least five (5) business days prior notice of any third party use of the Service and the identity of any such third party. Should Customer resell any Service provided hereunder or otherwise permit use of such Service by any third party or parties, Customer shall be a guarantor of compliance by each such third party with all the terms of this Agreement and any breach by any such third party shall be deemed to have been committed by Customer.

Article 19. Payment

A. In accordance with the Service Order of Schedule 4, Customer shall pay to IsoTropic the monthly recurring service charge ("MRC") for Service.

B. Invoices will be issued monthly fifteen (15) days in advance and are payable on the first (1st) day of the month for which service is provided. On payments not received by the due date, IsoTropic will assess until such time as payment in full is made, a late payment charge of the lesser of (i) one and one-half percent (1.5%) per month compounded monthly, or (ii) the maximum rate permitted by applicable law. All charges hereunder are exclusive of taxes, duties and other fees or charges levied by governmental authority on the Service or the facilities used to provide the Service. Customer will pay directly or reimburse IsoTropic for all such taxes, duties and other fees or charges.

Article 20. Credits

Credits for Interruptions in Service of five (5) minutes or more shall be granted to Customer as follows:

Credit = Number of minutes in the Outage Unit/Number of Minutes of the Service Event

Multiplied by the Usage Charge per Hour associated with the Channel Data Rate in Kbps of that Service Order.

The length of an Interruption will be measured from the time IsoTropic is notified by Customer of the Interruption and has vacated the Transponder until Service is restored. No credit will be due, however, if such Interruption is a result of, or attributable in whole or part to (i) the fault of Customer, any Customer Designee (as defined below) or any agent or subcontractor of either, or of any third party, (ii) the failure or unavailability of satellites, transponders, facilities, services or equipment furnished to Customer other than by IsoTropic, (iii) sun outages or rain fade, or (iv) unless otherwise provided herein, suspensions of Service made in accordance with

this Agreement. Except as otherwise specifically set forth in this Agreement, the aforementioned credit will be Customer's sole and exclusive remedy for unavailability of Service and/or failure of Service to meet the Transponder Performance Specifications.

Article 21. Notices

All notices regarding technical or operational matters requiring immediate attention will be given by telephone followed by written notification. All other notices and requests will be in writing delivered to the address(es) set forth in the Information Summary or to such other address(es) as the party may designate in writing.

Article 22. Customer Responsibilities

- A. Except as otherwise agreed to by the parties in writing, Customer shall be responsible for obtaining and maintaining any licenses and permits required for operation of its Satellite Terminal(s) and utilizing the Service. IsoTropic may make available, if commercially and technically feasible, its FCC blanket license for the Satellite Terminals; however, this Agreement is not subject to that availability.
- B. Customer shall be responsible for procuring, engineering, installing, testing, operating, maintaining and repairing the Satellite Terminals including optimal performance, channel utilization and sizing of the Satellite Terminals as utilization of an Approved Channel to its fullest extent (nominal channel capacity) is a function of Satellite Terminal characteristics, including antenna size and location and BUC power. IsoTropic shall specify the satellite modem(s) used in Satellite Terminals on the Service Order Form and may provide a link analysis (for information purposes only) with recommendations for optimal performance upon Customer's request
- C. Customer will be responsible for performing a one (1) hour mandatory test, at no additional charge to Customer, of the Satellite Terminals and Approved Channels quarterly during the Service Term ("Mandatory Testing"). This test, as a minimum shall include testing the operational status of Satellite Terminal(s) and setup of Approved Channels between the Satellite Terminals to ensure compliance with the requirements herein including but not limited to Schedule 2 Access Procedures.
- D. Customer will provide communications capability required to communicate with IsoTropic's Network Operations Center (NOC) to perform the procedures as set forth in Schedule 2 Access Procedures.
- E. At a mutually agreed time, and prior to Customer transmitting using the Service from any Satellite Terminal(s) for the first time, Customer will demonstrate to IsoTropic's NOC that its Satellite Terminal(s) comply with Schedule 1 and 2 as amended from time to time by IsoTropic.
- F. Customer shall not, and shall not allow its customers, resellers, end users or third parties to, directly or indirectly: (a) modify, translate, reverse engineer, decompile, disassemble, or otherwise attempt to discover the source code or structure, sequence or organization of the NetModem Software or the underlying ideas or algorithms of the NetModem Software, except to the extent applicable statutory law expressly prohibits such restrictions; (b) create derivative works based in any way on the NetModem Software; (c) use the NetModem Software for performing comparisons or other "benchmarking" activities; (d) copy, rent, lease, distribute, or otherwise transfer rights to the NetModem Software; (e) use the NetModem Software for timesharing, application service provider or service bureau purposes; or (f) remove any proprietary notices or labels on the NetModem Software. Furthermore, Customer agrees to abide by all terms of the manufacturer license for the NetModem and NetModem Software.
- G. Customer shall be responsible for any training of (i) Customer's personnel and/or (ii) Customer's customers at Customer's sole expense regarding NetModem installation, use, operation, test, repair and maintenance or otherwise.
- H. In order to maintain NetModem compatibility with the IsoTropic Hub system, Customer shall allow all NetModems to accept IsoTropic-provided NetModem Software Maintenance. NetModem Software Maintenance may require some network downtime which the NOC shall communicate to Customer in advance to the extent practical.

SCHEDULE 1 - Commercial Operations Systems Users Guide

Technical Guidelines, Satellite Access and Operating Procedures

This document describes the necessary procedures for accessing Satellites operated by IsoTropic Networks, Inc. (IsoSat) going forward.

1) Administration Contact, Trouble Reporting and Escalation

A) Trouble Reporting Procedures and Access Control Phone Number

Please contact the IsoTropic Network Operations Center (NOC) at 1.262.248.9654.

Immediately upon receipt of reported trouble from a Customer, the IsoSat NOC operator will initiate a trouble report. Appropriate escalation procedures will be implemented as necessary. Status reports will be furnished to the Customer at appropriate intervals.

2) <u>Earth Station Obligations</u>

All transmitting earth stations must have a Remote ID (RID) for each remote site transmitting.

In the event of an anomalous condition, the remote point of contact shall have the absolute authority and technical capability, either by directly or by alternate means, to modify or cease transmission immediately upon, and in accordance with, direction from the IsoSat NOC. Should the IsoSat NOC request modification or cessation of transmission to the satellite, the remote point of contact must have the authority to do so without recourse to a higher authority. These criteria may be met by having qualified personnel on site at the remote during all transmission periods or via remote control from a location manned during all transmission periods. The service offering contains significant financial penalties for customers who do not promptly cease transmission when notified of a pre-emption by the IsoSat NOC or when notification is attempted and there is no answer at the telephone number provided by the customer.

The remote is responsible for resolving any interference incidents caused by signal transmission to adjacent satellites, which have been identified by the customer or the IsoSat NOC.

The remote entity is responsible for securing and adhering to the transmission schedule and contacting the NOC at the specified time prior to transmission in order to coordinate the provision of service.

To ensure that signals transmitted will not interfere with other signals transmitted, the remote earth station and the IsoSat NOC will complete a Performance Evaluation prior to starting service. The following transmission parameters apply:

• **Transmitted Carriers:** Please refer to your pointing and parameters guide for the technical specifications and parameters relating to your specific service.

A) Transmit Power:

The IsoSat NOC shall authorize a particular transmit power for each transmitting remote earth station with a given transponder attenuation setting. For a transponder operating in a mode where the power is backed off below saturation, this authorized transmit power will not be exceeded. The use of Uplink Power Control (UPC) must not cause the authorized power to be exceeded.

B) Frequency Resolution:

It is recommended that remote earth stations accessing the satellites should have transmit and receive equipment that allows the carrier frequency to be set with a precision of at least 2.5 kHz.

C) Transmit Polarization Isolation Guidelines:

Since polarization orientation with respect to the local horizon can vary over the coverage area, it is necessary to provide a means to adequately adjust this polarization. It is therefore mandatory that the remote earth station be capable of adjusting its polarization angle over a range of +/- 60 degrees.

Isolation between orthogonal cross-polarized signals is optimally at least 35dB at Ku Band frequencies and 30dB at C Band frequencies throughout the frequency band within the conical angle of 0.25 Theta, where Theta is the half-power beam width of the main beam. Some transmit antennas have specifications of only 30 dB transmit cross-polarization isolation. This is acceptable however such antennas must still meet the half power beam width requirement using the 30dB cross-polarization specification. These cross polarization requirements may be relaxed up to a maximum of 5dB on a case-by-case basis.

The polarization adjustment of the remote earth station antenna relative to the satellite shall be maintained to an accuracy of 1.0 degree at minimum Faraday rotation.

D) Receive Cross-Polarization Isolation:

The quality of the downlink signal depends, among other factors, on the capability of the remote earth station to discriminate the received desired signals from the undesired signals on the orthogonal polarization. To limit the excess downlink interference, it is highly desirable that the remote earth stations provide good receive cross-polarization isolation. It is recommended that the remote earth station assure a receive cross polarization isolation on axis of its antenna of 30dB.

E) Limitations for Stations Operating in the 13.75 to 14.0 GHz Band:

Remote Earth stations operating in the frequency band from 13.75 to 14.0 GHz have additional restrictions. It is mandatory that earth stations operating in this band must exhibit diameters greater or equal to 4.5m. Also, the EIRP per carrier for stations operating in this band is limited to the range between 68.0 - 85.0 dBW.

EIRP increases of more than 2 dB above calculated values will not be allowed.

The satellite operator may, over the life of a satellite, adjust the gain setting of any transponder to maximize satellite throughput efficiency and performance. It is recognized that Saturation Flux Density (SFD) settings may be adjusted from the nominal values of the original setting, and as a result, earth stations accessing the transponder may be required to adjust their carrier levels up or down accordingly to accommodate such a change.

It is therefore recommended that all transmitting earth stations be capable of providing transmit level control of up to +/- 6 dB from the nominal EIRP value.

F) Earth Station Transmitter Termination:

Unauthorized power levels transmitted from one remote earth station degrades the integrity of the space segment for all users. Removing only the radio frequency drive to the earth station output amplifier is not sufficient to terminate the transmission. All AC power must be removed from the power amplifier.

G) Antenna Pointing Stability:

To protect adjacent satellites from excess interference, and to meet EIRP stability requirements in the direction of the satellites, the pointing stability of the remote antenna must be specified.

It is mandatory that remote antenna pointing stability be such that environmental conditions, both internal and external to the remote earth station, will not cause sufficient antenna movement to produce more than a ± 1 dB change in operational flux density at the satellite. Under no circumstances may the remote earth station violate cross-polarization isolation requirements as stated in the previous sections.

3) Accessing Procedures

Prior to accessing a satellite, a pointing and parameters guide must be prepared which outlines the specific space segment resources required to satisfy the contracted service. This plan includes:

- Remote ID # (RID)
- Frequency and power levels
- Transponder loading
- Co-frequency traffic on the cross-polarized transponders of the satellite.
- Co-polarized traffic on transponders on adjacent satellites.
- The specific nature of the contracted service (site locations, connectivity requirements, performance characteristics of the ground segment which will be used to provide the service, etc.).

A) Initial Remote Earth Station Performance Verification:

Prior to commencement of any uplink transmissions from any site for the first time (or after performing certain modifications to an existing station such as re-pointing, depolarizing, antenna and/or feed replacement, etc, it is mandatory that the IsoSat NOC be contacted to assist in performing an initial earth station performance verification test.

To schedule testing, IsoSat should be contacted at least twenty-four (24) hours in advance. IsoSat will coordinate with you and the Technicians in the IsoSat NOC to schedule the testing.

Once the testing is scheduled, contact the IsoSat NOC. The IsoSat NOC will first verify that the uplink station is authorized to access the satellite. A valid customer Remote ID number must be provided to the technician. Next, the IsoSat NOC technicians will assist the earth station operator in pointing to the satellite by identifying pilot or beacon frequencies, faxing transponder spectrum plots, and/or providing data on identifying features that may be required.

The IsoSat NOC Technician will then coordinate with the Customer to perform the earth station performance verification and access procedures. Initial performance verification is the process whereby the Customer, under the direction of a IsoSat NOC Technician, certifies the suitability of a new or reconfigured uplink remote earth station prior to the operation of that station using transponders. The purpose of the process is to prevent any harmful interference into the satellite or adjacent satellite space segments due to an out-of-tolerance anomaly of the earth station and to allow the Customer to correct problems with the earth station prior to entering into operation. It is recommended that all uplink earth stations be verified at least one (1) business days prior to the expected start of service ensuring that:

- Adequate access time is available for testing the earth station
- Problems can be corrected prior to the expected start date

IsoSat is not responsible for any delays in the Customer's service where the Customer has not obtained performance verification of an earth station. The Customer should plan sufficient time in advance to allow for the identification of any problems the Customer may have in passing the performance verification test and subsequently accessing the satellite.

B) Initiating Carriers - When Ready to Initiate Carriers Contact the IsoSat NOC:

Most irregular conditions occur on satellite transmission during circuit initiation. Consequently, it is mandatory that the IsoSat NOC be contacted any time a Customer begins transmission of any carrier to the satellite. Even after the Customer has obtained initial earth station performance verification and is ready to transmit the normal communications signal, it is still necessary to contact the IsoSat NOC. It is also requested the Customer contact the IsoSat NOC at least twenty four (24) hours in advance to schedule access on the service start date. This request may be relaxed on a case-by-case basis.

C) Satellite User's Interference Reduction Group (SUIRG) Standard Access Procedures:

This procedure was developed by the Satellite User's Interference Reduction Group (SUIRG) and should be used for accessing all U.S. Domestic Transponders, both in the C and Ku frequency bands.

SUIRG is dedicated to identifying and mitigating the growing problem of satellite interference and the economic harm it inflicts on the industry. You may learn more about SUIRG at http://www.suirg.org/.

4) Configuration Management

The IsoSat Capacity Management Team is dedicated to helping you with your configuration plans and other transmissions. This Team will review each request as well as existing loading plans, coordination agreements, and other pertinent operating requirements to determine if the request can be accommodated. Conflicts and other potential sources of interference will be identified and alternatives will be explored. Contact must be made at the earliest possible time before the change is required. Your cooperation will ensure quality transmissions for everyone. If unsure of whom to contact, please call Isosat's Capacity Management Team at 1.262.248.9654.

5) Service Protection Levels

Upon identification or notification of a transponder failure, the IsoSat NOC will request that the transponder be released to them for verification of the trouble. The IsoSat NOC will not implement any restoration plan until the failure of the transponder has been verified. Generally, attempts will be made to activate space equipment, where available, on board the satellite in place of a restoration.

UPLINK OPERATORS ACCESS CHECKLIST

(This PROCEDURE WAS DEVELOPED by the Satellite User's Interference Reduction Group (SUIRG) and should be used for accessing all U.S. Domestic Transponders, both in the C and Ku frequency bands.)

BEFORE CALLING FOR ACCESS, PLEASE CHECK THE FOLLOWING:

- 1) Have the Remote ID or order number and any other pertinent documentation or specifics available
- 2) Antenna aiming
- 3) Polarization optimized and set for the correct polarization
- 4) Transmitter status

WHEN CALLING FOR ACCESS, PLEASE PROVIDE THE FOLLOWING INFORMATION:

- 1) Remote Uplink operators name
- 2) Remote Uplink name and location
- 3) RID # or order number provided to you by IsoSat
- 4) Satellite, Bandwidth, digital rate and uplink polarization
- 5) Start time of feed

PERFORMING THE ACCESS:

During the access process, do not change power, frequency, polarization, or antenna aiming without prior direct instruction from the NOC. If instructed to cease transmission (drop off), the remote uplink operator must be <u>prepared and in position to comply immediately without discussion.</u>

When instructed by the NOC, provide a low power un-modulated carrier at a power of about 5 dB above the transponder noise floor. Verbally confirm that you have done this with the control center. NOTE: If the IsoSat NOC does not see your low power signal as expected, they may instruct you to immediately drop. This is an indication that there is a frequency, polarization or satellite pointing error. If these errors are encountered and corrected, then:

- A) Wait for further instructions while your cross-pol and frequency are checked
- B) When requested, slowly increase power to operating level and stop
- C) Wait for further instruction while your cross-pol is checked again
- D) When requested, modulate the signal and verify your downlink
- E) Wait for further instructions while your deviation / occupied bandwidth is checked and if applicable, Automatic Transmitter Identification System (ATIS) signal is verified
- F) The control center will ask for, or verify your uplink telephone number. The control center must be able to reach the remote uplink operator at this telephone number at any time during the uplink
- G) The NOC will verify the end time of your uplink.

SCHEDULE 2 – Access Procedures

Customer is responsible to notify the IsoTropic NOC (262) 248-9654 at least 24 hours prior to site installation and commissioning to arrange a commissioning appointment.

Installer is to have the IsoTropic supplied NetModem options file loaded on the hardware at the remote site. Antenna should be pointed to the best of installer's ability – there should be a Green RX indicator on the NetModem. Proper Elevation, Azimuth and Polarity should be set to maximize the receive signal at the remote site.

Installer must have either iSite or Telnet connectivity to the NetModem.

Customer understands and agrees that the site will not be activated into the IsoTropic iDirect network prior to a formal commissioning procedure accomplished with IsoTropic NOC personnel.

Customer will contact the IsoTropic NOC once the NetModem has a Green RX indicator and the installer is ready to perform a peak and polarity test.

IsoTropic NOC personnel will guide the installer (with Customer personnel) through the commissioning procedure. For IA-7 commissionings, Loral and/or Intelsat personnel may also be required.

Commissioning will consist of the following:

- 1) Initiating a Carrier Wave at an appropriate frequency
- 2) Azimuth Check
- 3) Elevation Check
- 4) Cross Polarity Check
- 5) 1db Compression test
- 6) Tightening all points of the antenna, and confirming proper mounting/ballast
- Confirm Latitude and Longitude of antenna installation (preferably via GPS device)

Upon successful testing of the items listed above, IsoTropic will activate the unit into the iDirect network. This will be followed by a "push" of a final configuration file and ultimately, a test of IP connectivity.

SCHEDULE 3 – Service Provisions

Service Initiation – Service cannot be initiated until IsoTropic Networks has received a properly executed contract, along with payment for the First month's service, commissioning fee and Deposit.

Deposits – Deposits are generally applied to the last month of each contract. Service may be suspended for late payment, irrespective of any deposits on account. IsoTropic reserves the right to review Customer's account at any time and may, at its own discretion, apply any Customer deposits to the Customer's account. Payment is due on the first of each month for service performed during that month. For instance, satellite service for January is due on the first day of January.

Service Suspension - If service is suspended for late or non-payment, the deposit may be, at IsoTropic Network's sole discretion, applied to the contract and the contract cancelled. A site may be re-instated upon payment of all invoices in arrears and a reactivation fee of \$150.00.

Payment Method – Preferred payment method is via wire transfer to IsoTropic Networks account. A wire transfer fee of \$35.00 will be charged for bank processing. IsoTropic may accept credit card payment at its sole discretion. A handling fee of \$15.00 will be charged for each credit card transaction.

Fair Access Policy – Although IsoTropic does not enforce a strict FAP, use of the bandwidth in excess of the specific plan will generate a review of each sites monthly service fee. Customer will have 7 days to adjust the service plan (in agreement with IsoTropic). If no agreement can be reached, IsoTropic retains the right to cancel the contract for the specific site(s) in question. IsoTropic's Standard Shared offering is based upon an oversubscription ratio of 20:1. This will be used unless otherwise stated.

VoIP – VoIP service will require the purchase of Committed Information Rate (CIR). IsoTropic does not make any representations that VoIP will operate correctly without the purchase of CIR.

Early Cancellation – If customer desires to cancel prior to the end of the agreed contract term, service will be re-calculated from the first day of service based upon the current monthly charge for the length of service actually used by Customer. For instance, if the 36 month rate is \$200.00/mo, and the 12 month rate is \$240.00/month, and customer cancels within 18 months, an additional lump sum charge will be made of \$40.00 x 18 months or \$720.00. Any deposits will be applied against this outstanding amount which is due immediately.

Service Changes – Customer may upgrade or downgrade the service level **on the first day of any month**. Downgrades will be charged a one-time fee of \$40.00/site/occurrence. IsoTropic agrees to waive any Upgrade fees. Upgrades and Downgrades will not be made in the middle of a calendar month.