

## AGREEMENT

BETWEEN

**NORDUnet A/S**

Kastruplundgade 22

DK-2770 Kastrup

DENMARK

And

**<Provider name>**

**<Provider Address >**

**<Provider Area Code and City>**

**<Provider Country>**

concerning

**NORDUnet ANA-100G**

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# Agreement parties

This Agreement ("the Agreement") is entered into between:

**NORDUnet A/S**, a limited company duly incorporated under the laws of Denmark with CVR-nr. 17490346 and having its registered office at Kastruplundgade 22, DK-2770 Kastrup, Denmark

(Hereinafter referred to as "the Customer");

and

**<PROVIDER>**, **<Provider Address>**, **<Provider zip/city>**, **<Provider Country>**, **<Provider Company Registration-no.>**

(Hereinafter referred to as "Provider").

WHEREAS

(i) the Provider offers to provide the Services to the Customer;

(ii) Customer wishes to contract for the Services from the Provider.

NOW THEREFORE the Parties hereto agree as follows:

## 1 Definitions and Interpretations

In this Agreement, unless the context otherwise requires, the following words and expressions have the following meanings:

<i>Term:</i>	<i>Defined as:</i>
"Commencement Date"	The date this Agreement has been signed by both Parties.
"Committed Delivery Date"	The agreed date on which the Services are contracted to be put into operation, being no more than 14 calendar days prior to Operational Service Date.
"Operational Service Date"	The date on which the Services is expected to be accepted in accordance with <b>Appendix 1</b> .
"Force Majeure"	The meaning given to it according to Clause 10.
"Party"	The Provider or Customer.
"Parties"	Provider and Customer.
"Services"	The services provided by the Provider in accordance with <b>Appendix 1-3</b> .

## 2 Scope and term of the Agreement

- a. The total agreement complex consists of
  - i. the present Agreement
  - ii. the services specified in the appendices included in this document
  - iii. if applicable a Purchase Order for the Services described in the Appendices which has been signed and accepted by both Parties.
  - iv. Subsequent Change Orders.
- b. In case of any conflicts between the contract, the appendices and the initial purchase order, the contract shall prevail over the appendices followed by the initial purchase order. Subsequent Change Orders describing features or functionality not part of the Appendices nor the initial Purchase Order however shall be allowed.
- c. The Provider agrees to provide the Services to Customer as specified in **Appendix 1-3**, subject to the terms and conditions as set out below.
- d. The Services shall be installed, tested and put into operation in accordance with the delivery procedure as specified in **Appendix 1**.
- e. The Committed Delivery Date for each of the Services is **YYYY-MM-DD**.

- f. Upon successful acceptance test the Operational Service Date for the Services **YYYY-MM-DD**.
- g. The Commencement Date for this Agreement will be the date of the signature by the last of the two Parties.
- h. This Agreement shall, unless terminated earlier under Clause 3 have effect for an initial term of 3 years, with a possible extension of additionally two times one year, to be agreed upon no later than 6 months prior to the end of each term.

## 3 Termination

- a. The Agreement may be terminated by either Party for any material breach by the other Party of the obligations set out in it, by giving written notice to the other of its intention to terminate. The notice shall include a detailed statement describing the nature of the breach. If the breach is remedied within a period of 5 (five) days after service of notice in case of breach of the payment terms or 10 (ten) days after service of the notice for material breach otherwise, the termination shall not take effect.
- b. Customer has the right to terminate the Agreement in whole or in part if one or more of the Services have not been accepted within 30 (thirty) days of the Committed Delivery Date.
- c. Either Party shall, in addition to the grounds on which an Agreement may be rescinded in law, be entitled to immediately terminate this Agreement in whole or in part by a written notification to the other Party:
  - (i) if the other Party becomes bankrupt or insolvent; has sought protection from its creditors under any statute or legal process; has suffered or permitted a trustee, liquidator, administrator, receiver, receiver-manager or similar custodian to be appointed or permitted to take possession of its property or assets; has voluntarily or involuntarily commenced proceedings for dissolution, liquidation or winding up; or has ceased to carry on business in the ordinary course;
  - (ii) if the other Party has invoked Force Majeure and it is ascertained that the Force Majeure will last longer than 10 (ten) days.
- d. Termination of the Agreement under Clauses 3.a, 3.b and 3.c shall mean termination of the obligations imposed on the Parties under Clauses 4, 5, 6 and 7 of this Agreement, provided that Provider is entitled to a termination charge of the total yearly fee for 1 year in case Provider terminates the contract due to material breach (including payment breach) by Customer which is not remedied timely in accordance with clause 3 a. The remaining clauses shall survive the termination of the Agreement, for whatever reason.

## 4 Remuneration and Payment

- a. In consideration for the provision of the Services Customer will pay the charges for the Services, as specified in **Appendix 2** with effect from the dates set out in the same. All charges are and shall be invoiced in Euros and exclusive of VAT and any other similar sales taxes, duties or levies imposed on the Provider by law. In case such a tax, duty or levy will be due, the respective amount will be added to the charges payable by Customer. Any payment due by Customer under the terms of this Agreement, which is not paid by the due date, shall accrue interest at the rate of the Danish Interest Law (renteloven) at any time.
- b. The Provider accepts that Customer may make the Services available to third parties at the discretion of the Customer.
- c. If there is a total failure to provide any of the Services by the Provider, and the Customer's right to receive penalties in accordance with this **Appendix 1** have been fully exhausted, then without prejudice to any other right or remedy of Customer, Customer may withhold any payment, which is due in respect of that Service to the

Provider under this Agreement, until such time as the failure is rectified. The Provider will not be entitled to charge Customer interest on any payment so withheld.

- d. If the Agreement is terminated by Customer according to clause 3.a or 3.b, Customer shall be refunded any and all remaining advance payments corresponding to periods following the date of termination plus interests at the rate of the Danish Interest Act (renteloven) at any time per month as from the date the payments were made.
- e. If the Agreement is terminated by the Provider, the Provider shall be entitled to retain and set off such remaining advance payments as are equal to the aggregate of any sums owed to it by Customer.
- f. Customer shall once annually have the right to demand a renegotiation of the charge for the Services based on the development of the general price of similar services in the market.

## 5 Service quality

- 5.1. The Provider shall provide the Services in accordance with the quality and availability parameters set out in **Appendix 1**.
- 5.2. The Provider may from time to time make minor variations to the technical parameters applicable to Service, whether specified in **Appendix 1** or otherwise, as long as the quality and functionality of the Service are not adversely affected. The Parties acknowledge and agree that the provision by the Provider of the Services does not provide Customer with any right to control any network or service configuration or design, routing configuration, re-grooming, rearrangement or consolidation of channels or Services or any similar or related functions with regard to the Provider's network
- 5.3. If an interruption of the availability of the Services has occurred during any billing period, Customer shall be eligible to compensation (Unavailability Compensation) in accordance with **Appendix 1**, except as specified in Clause 5.4 below.
- 5.4. Compensation for unavailability does not apply for:
  - i. Interruptions caused by Customer, its employees or third parties brought in by Customer, or equipment brought in by Customer; or
  - ii. Interruptions during periods when Customer reports a Service to be inoperative but declines to release it for testing and repair; or
  - iii. Interruptions due to Force Majeure.
- 5.5. Unavailability must be measured and documented by the Provider and reported to the Customer on a monthly basis. Discrepancies in unavailability measurements between the Provider and the Customer should be resolved between the parties and the adequate level of compensation must be established. The Provider will initiate the payment of unavailability compensation to the Customer based on an invoice from the Customer.

## 6 Obligations of the Customer

- a. Customer shall be able to use the Services for any lawful purposes.
- b. Customer shall be responsible for its own configuration and use of the Services including, without limitation, the provision of all interconnection facilities, network equipment, Customer testing equipment and procedures, maintenance of equipment, and other facilities or actions necessary to utilize the Services unless such have been provided by the Provider.
- c. Customer shall only use and connect equipment to the Services that complies with all applicable laws, regulations, industry standards and licensing requirements.
- d. Customer shall conduct all operations and use of the Services in a manner, which does not interfere with the operations of the Provider's network or the use thereof by any other customer of the Provider.
- e. Customer shall comply at all times with reasonable operating procedures, policies and interconnection requirements of the Provider as are made known by the Provider from time to time.
- f. In particular Customer shall be required
  - 1) to reimburse any costs incurred by the Provider for checking its equipment following submission of a fault report if such checks show that the fault was not in the Provider's equipment;
  - 2) for any check not paid or any debit advice not honored or returned, Customer shall reimburse the Provider for the costs incurred to the extent that Customer was responsible for the event giving rise to the costs;
  - 3) to have all installation and modification work on the service performed solely by the Provider or a third party authorized by the Provider;
  - 4) upon the Provider's request, provide reasonable assistance to the Provider or its duly authorized sub-contractors regarding the clearance of faults and the implementation of Capacity and/or Services, such as, but not limited to, taking measurements or granting access to Service Locations and/or Customer equipment.
- g. Late payment and default charges
  - 1) Provider will Invoice Customer monthly in advance. Payment is due 30 days after receipt of invoice. If the amounts due are not paid within this period Customer shall be obliged to pay interest on any amount due at an interest rate of 0,25 per cent above the Euribor (European Interbank Offer Rate)
  - 2) If Customer is in arrears with a significant amount due the Provider shall have the right to suspend the Services at Customer's expense, but Customer is still obliged to pay the recurring charges. Provider is entitled to suspend the Services in case a breach of the payment terms is not remedied within 5 days after service of receipt by Customer of an official notice.
  - 3) In the event that Customer is in default of payment of charges or a significant amount thereof for two consecutive months, or for a period of more than two months but with an amount corresponding to the basic monthly charges for two months, the Provider shall be entitled to terminate the Agreement and to demand compensation for losses suffered.
  - 4) Upon the Provider's request, provide reasonable assistance to the Provider or its duly authorized sub-contractors regarding the clearance of faults and the implementation of Capacity and/or Services, such as, but not limited to, taking measurements or granting access to Service Locations and/or Customer equipment.
  - 5) Taxes, if any, including VAT shall be invoiced by the Provider in accordance with the laws and rates in force at the time of the invoicing.

## 7 Obligations of the Provider

- a. With effect from the Operational Service Date the Provider will provide Customer with the Services as specified in **Appendix 1**.
- b. The Provider shall comply with all safety and security requirements notified to the Provider when accessing Customer's POPs or other premises in order to fulfill its obligations under this Agreement.
- c. The Provider shall make it possible for those of Customer's employees responsible for operations, to have direct contact with the technical staff members of the Provider's central network management.
- d. The Provider shall inform Customer regularly on the performance capability of the Services. The content of such reporting is described in **Appendix 1**.
- e. The Provider shall support the direct cooperation of the technicians of Customer (or its subcontractors) with his people responsible for the operation of the Services. The Provider shall carry out all necessary maintenance and repair work to ensure the agreed quality of the Services as described in Appendix 1.
- f. The Provider shall meet the following requirements on its Network Operations Centre:
  - I. The Network Operations Centre (NOC) of the service Provider shall have 24 hours a day and 7 days a week operations staff monitoring the Service and responding to fault reports from the Customer NOC
  - II. The Provider's NOC shall actively monitor the Service from end to end. In case of failure of the Service the Provider's NOC shall report the incident to the Customer's NOC, stating Provider's trouble ticket number
  - III. The Provider's NOC shall respond on incidents reported by the Customer's NOC. The Provider's NOC shall confirm the receipt of such a notice stating the trouble ticket number of Provider's NOC and with reference to the Customer trouble ticket number within 30 minutes.
  - IV. During fault situations, the Provider's NOC shall keep the Customer's NOC adequately informed on a regular basis and shall report back without delay when the fault situation has been fixed.
- g. The Provider will comply with and ensure that the Services comply with all relevant and applicable local, national and supranational laws and regulations in each jurisdiction in which any of the Services are provided / received.

## 8 Infringement of intellectual property right

- a. The Provider is responsible for the protection of intellectual property rights, which exclude or limit the use of the Services. The Provider shall indemnify and hold Customer harmless from any loss, damage, liability or expense incurred by Customer arising out of any infringement of the intellectual property rights of third parties.
- b. Should any infringements of intellectual property rights under Clause 8.a be proved after the conclusion of this Agreement and should the use of the Services be affected or prohibited, the Provider undertakes at its choice either to amend or to replace the Services in such a way that it is no longer covered by intellectual property rights, although corresponding to the contractual provisions, or to obtain the right for Customer to use the Services without limit and without paying royalties.

## 9 Limitation of Liability

- a. Except in the case of death or personal injury, the maximum aggregate liability of either Party to the other for any loss sustained by the other Party as a documented result of negligence in connection with anything done or omitted to be done under this Agreement shall be limited to an amount equal to five year's remuneration.
- b. Neither Party shall be liable to the other for any indirect or consequential loss or damage. For these purposes, "indirect or consequential loss or damage" includes, but is not limited to, loss of revenue, profit, anticipated savings, business or goodwill, loss or corruption or destruction of data.
- c. The liability of the Provider according Clause 8 (infringement of intellectual property rights) shall remain unaffected by the limitations in this clause.

## 10 Force Majeure

- a. Subject to Clause 10.c neither Party shall be held liable by the other for failure in performing its obligations under this Agreement if such failure is caused by or arises as a result of an event of Force Majeure.
- b. For the purposes of this Agreement "Force Majeure" shall mean all circumstances not foreseeable and beyond the Party's reasonable control such as natural catastrophes, governmental measures, decisions of authorities, blockades, war and other military conflicts, mobilization, internal unrest, riot, acts of terrorism, which occur after the conclusion of this Agreement and impede the due performance of the Agreement temporarily or permanently.
- c. The Party affected by Force Majeure shall notify the other Party immediately in writing of the beginning and the end of the impediment and send proof of this by an official confirmation.

## 11 Assignment

- a. Neither Party may without the prior written consent of the other Party assign all or part of its rights and obligations under this Agreement to any other party, such consent not to be unreasonably withheld or delayed in the case of an assignment to any affiliate of the Party.

## 12 Notices

- a. All notices served on either Party by the other will be in the English language.
- b. Any notice to be given under this Agreement shall be in writing and shall be deemed to have been served when personally delivered, when transmitted by fax, electronic or digital transmission method provided that such transmission is confirmed by a receipt or successful transmission report and confirmed by mail to the following addresses:

The Customer:                   NORDUnet A/S  
Address:                    Kastruplundgade 22  
                                  DK-2770 Kastrup  
                                  Denmark  
Fax no:                    +45 4576 2366  
Attention:                René Buch  
E-mail:                    [Rene.Buch@nordu.net](mailto:Rene.Buch@nordu.net)



The Provider:

Address:     <Customer Address>,  
              <Customer zip/city>,  
              <Customer Country>

Attention:   \_\_\_\_\_

E-mail:       \_\_\_\_\_

## 13 Governing Law

- a. The Agreement shall be governed, construed and interpreted according to Danish Law.
- b. All disputes arising between the Parties in connection with this Agreement or its validity shall be finally settled according to the Arbitration Rules of the Danish Institute of Arbitration (Danish Arbitration) without recourse to the ordinary courts of law. The language of the arbitral proceedings is English. The place of arbitration is Copenhagen.

## 14 Confidentiality

- a. All information, of any nature, provided by one Party to the other in connection with this Agreement save for information which the originating Party has expressly identified as being non-confidential are to be considered as confidential.
- b. Either Party may disclose confidential information to its employees, affiliates, agents, and legal, financial, and accounting advisors and providers (including its lenders and other financiers) with a bona fide need to know but only to the extent necessary or appropriate in connection with the negotiation and/or performance of this Agreement or its obtaining of financing, provided that each such party is notified of the confidential nature of such confidential information and is bound by similar restrictions on its use and disclosure.
- c. The provisions of this Clause shall survive for a period of two years from the date of the expiration or termination of this Agreement.

## 15 Conditions

- a. This Agreement is conditional upon the ultimate parent of the Provider undertaking a guarantee for the provision of services to Customer according to Appendix 4.
- b. This Agreement represents the entire understanding between the Parties with respect to its subject matter and supersedes all prior agreements, understandings or arrangements, whether oral or written.
- c. This Agreement may only be modified or supplemented by an instrument in writing executed by a duly authorized representative of each Party.
- d. If any term, covenant or condition contained herein shall, to any extent, be invalid or unenforceable in any respect under the laws governing this Agreement, the remainder of this Agreement shall not be affected thereby but remain valid and enforceable to the fullest extent permitted by law.
- e. Nothing in the Agreement shall create, imply or evidence any partnership between the Parties or the relationship between them of principal and agent for any purpose whatsoever.

- f. The failure of Customer to exercise or enforce any right conferred to it by this Agreement or by law, shall not be construed as a waiver or relinquishment of its part of any such right nor shall it operate to bar the exercise enforcement thereof or any other right or remedy on a later occasion.

# 16 Signature

SIGNED for and on behalf of

**The Provider**

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Date:

Signature: .....

SIGNED for and on behalf of

**NORDUnet A/S**

Name: René Buch

Position: Chief Executive Officer

Date:

Signature: .....

# 17 Appendix 1 The Contracted Services

Description of the Contracted Service including technical specification and route maps (to be updated in accordance with tender reply)

## Description of Digital Circuit Service Items

### 1. Service Standards Compliance

#### 1.1. Standards

The following general ITU-T and other recommendations apply for the Digital Circuit Service Item(s) (except where other service parameters such as bit error rate performance are explicitly specified elsewhere in this Contract):

LAMBDA SERVICES			
FRAMING TYPE	CAPACITY	REFERENCE	
OTN	100 Gbps (OTU-3/OTU-4)	ITU-T: G.709 & G.693	The entire ODUk frame including the ODU overheads are transported without modification.
Ethernet	100 Gbps (LAN-PHY)	IEEE 802.3ae & 802.3ba standards IEEE 802.3ba-2010	Full bit-transparency of the entire 100 Gbps signal facilitating transparency to the following: Large (“jumbo”) Ethernet frames of at least 9216 bytes length IEEE 802.1Q VLAN tagged Ethernet frames IEEE 802.1ad (“Q-in-Q”) Ethernet frames IEEE 802.1ah (“MAC-in-MAC”) Ethernet frames PAUSE frames as used in IEEE 802.3 Flow Control Where a solution does not provide full transparency (e.g. to the Ethernet preamble and/or inter-packet gap) then details must be provided.
			IEEE 802.1ag: Connectivity Fault Management (CFM) [IEEE 802.1ag] or parts thereof (as agreed)
			ITU-T Y.1731: OAM functions and mechanisms for Ethernet-based networks or parts thereof (as agreed).
			IEEE 802.3ah: Ethernet in the First Mile OAM [IEEE 802.3ah] or parts thereof (as agreed) .
		OAM support (Point-to-point Ethernet transport	MEF E-LMI: Ethernet Local Management Interface [MEF E-LMI TechSpec or parts thereof (as agreed).

## 1.2. List of Service Items

### Service Connectivity

1.2.1. The Supplier will provide a transparent 100GE Lambda service to the relevant ITU/IEEE recommendations, undertaking contractual arrangements with other supplier(s) as required. : The circuit shall be delivered as a transparent 100Gigabit per second lambda.

1.2.2. There is no requirement for circuit to be protected however if a supplier can offer such service detailed information about restoration of the submarine and terrestrial path should be provided.

## 1.3. Route maps and route description

The below figure shows the routing

The specific routing is the following:

## 2. Charges

(to be updated in accordance with tender reply, Annex A)

## 3. Service Levels and Service Credits

(to be updated in accordance with tender reply)

### Service Metrics

the following Service performance metrics shall apply to all *relevant* Services.

Service Level Description	Service Level Measurement	Service Level Target	Service Credit	Service Level Threshold
Availability (monthly) - Circuits  Unprotected	In accordance with 3.9.4	99.4%	Calculated as per Para 3.10.5	97.5% for two consecutive calendar months
Mean Time Between Failures (on a rolling 12 month basis)		10 days	Where the MTBF target is exceeded, compensation at the rate of one day's pro-rata part of the recurrent Service fee per Failure will be made, from (and including) the fourth (4th) Failure in each calendar month.	
Recurrent Failures		Less than 2 (two) failures of any service level targets within a service measurement period (calendar month)	Material Default - See Clause in main MSA	

Service Level Description	Service Level Measurement	Service Level Target	Service Credit	Service Level Threshold
Delay – Service Delivery Guarantee	Time elapsed between CDD and actual Service commencement	Committed Delivery Date	4% of the monthly recurring charges per day payable for the period between the CDD and the OSD subject to a cap of 100% of the monthly recurring charge	N/A
Planned Maintenance	Max 8 hours per annum	7 days' notice, 6 pm to 6 am GMT Monday to Thursday		
Bit Error Rate		$1 * 10^{-16}$		
Call and Fault Handling	The help desk will be reachable in 99.9% of cases per calendar month and trouble tickets will be opened within 15 minutes of problems being reported by the Customer or detected by the Provider.			

### 3.1. Availability

Subject always to the relevant SoW, the guaranteed availability of the Service is set out in this Annex C3. The Provider shall provide a Service that is available 24 hours per day, 7 days per week except for scheduled maintenance.

### 3.2. Scheduled and Emergency Maintenance

The Provider will inform the NORDUnet Network Operation Centre at least 7 days in advance by e-mail of any scheduled maintenance which might lead to service disruption. It will be attempted to perform all scheduled maintenance between 6 pm to 6 am GMT Monday to Thursday. For non-scheduled maintenance at least 48 hours notice by e-mail should be given, where possible (advance notice in case of emergency maintenance may be shorter, if any). It is the Parties' intention to keep maintenance periods to the minimum required.

A maximum of 8 hours of scheduled and emergency maintenance is allowed on a rolling year basis.

### 3.3. Problem Reporting and Resolution

3.4. The Provider and the Customer may each detect faults in the Service. The Provider shall take all necessary steps to have the faults remedied. The Provider will operate a trouble ticketing system recording all problems reported by the Customer as well as any faults detected by the Provider. Trouble tickets will normally be opened within 15 minutes of problems being reported by the Customer or its agents, or being detected by the Provider. The Provider will inform the Customer of the trouble ticket number as soon as it has been created. The Provider will keep the Customer informed at such intervals as are reasonable in the circumstances of the progress which is being made in repairing the fault.

3.5. Trouble tickets will be closed when service has been restored and the Customer has agreed that the trouble ticket should be closed. In the event that the Provider closes a trouble ticket before an outage has been cured, the Customer will be entitled to re-open such trouble ticket as of the time that it was originally raised by the Customer.

### 3.6. Contact Points

### 3.7. Escalation Procedure

### 3.8. Demarcation Points

3.8.1. The Provider will be responsible for the cabling up to the Customer's equipment as set out in Appendix 1 - Service Description, Service End Points

### 3.9. Reports

3.9.1. In addition and subject always to the relevant Statement of Work, - the Provider will provide one regular service performance report each calendar month within five working days of the end of the month, comprising:

- Service fault report; and
- Service availability report

3.9.2. The Provider must provide the reporting information in Microsoft Excel or Microsoft Word format as specified by the Customer. In the event that the Customer requests a non-standard report from the Provider, the Provider will have 10 working days to deliver such report.

#### 3.9.3. Service Fault Report

The service fault report will detail all faults reported during the month with respect to the service provided. The following information must be included:

- Record and description of each fault.
- Total down time for each fault (in minutes).
- Outage start time for each fault.
- Outage end time for each fault.
- Action undertaken to resolve the fault.
- Provider ticket number.
- Confirm if target time to restore was met.
- Each fault must be classed as one of the categories outlined in paragraph 9.7.1

The report must contain a summary of the following:

- Downtime of Service (in minutes).
- Percentage of faults cleared within the target time.
- Mean Time Between Failures (MTBF) – to be reported in days per month on a rolling 12 month basis.
- Mean time to Restore (MTTR).
- Number of tickets opened by the Customer.
- Total number of incident tickets raised.
- Total number of maintenance tickets raised.

The report must be provided in the Microsoft Excel format.

### 3.9.4. Service Availability Report (Circuits)

The percentage availability must be calculated for the Service, based on the downtime of the link(s) according to the time derived from the trouble ticket system each calendar month, and will be calculated as follows:

Circuit Monthly Availability	(TCS – TCU)	x 100
=	_____	
Percentage	(TCS - TCN - TCM)	

Where (durations are in minutes):

- TCS (Total Circuit Service) = the total minutes that the service has been active during the calendar month (or partial calendar month for the first month of activation). (TCS = Number of days for the relevant reporting month x 1440 or pro-rated in the first month of activation).
- TCU (Total Circuit Unavailability) = The total duration of all unavailability periods (in minutes) of the circuit in the calendar month.
- TCN (Total Circuit not Available) = the total duration (in minutes) in of all unavailability periods of the circuit attributable to the Customer and/or its agents (not the service Provider) in the calendar month.
- TCM (Total Circuit Maintenance) = total duration (in minutes) of all circuit outages in the calendar month due to scheduled maintenance, up to a maximum of eight hours (480 minutes) in any calendar year.

The following information must be included

- Availability (percentage)
- Total scheduled maintenance per service (hours)
- Total downtime per service (percentage)
- Mean Time Between Failures (MTBF) (days).
- Mean Time To Restore (MTTR) (hours).
- Latency (where applicable)

The report must be provided in Microsoft Excel format.

### 3.9.5. Fault Handling Report

The Fault Handling Report must set out the faults reported during the calendar month with respect to reliability and trouble ticket response time. Mean time between failure needs to be reported in days per calendar month on a rolling 12 month basis.

## 3.10. Service Performance

### 3.10.1. Fault Handling

The help desk will be reachable in 99.9% of cases per calendar month, and trouble tickets will be opened within 15 minutes of problems being reported by the Customer or detected by the Provider.

### 3.10.2. Delivery Guarantee



3.10.2.1. Delivery guarantees are given to the Customer, and the Provider will compensate the Customer if the OSD exceeds the agreed CDD for reasons caused by the Provider, its agents, contractors or sub-contractors. The Provider will also commence the necessary procedures to ensure that alternative connectivity is provisioned in order to ensure continuity of the Customer Services in those countries affected by any delay from the OSD.

3.10.2.2. If the OSD of a Service Item occurs after its CDD, the Provider will compensate the Customer by a rate of 4% of the monthly recurring charges per day payable for the period between the CDD and the OSD subject to a cap of 100% of the monthly recurring charge. If necessary, the Provider will also commence the necessary procedures to ensure that alternative connectivity is provisioned in order to ensure continuity of service in respect of Service Items affected by any such delay.

3.10.2.3. At the Customer’s sole discretion such compensation may be deducted from any subsequent charge payable by the Customer. Compensation will be applied as a deduction from the charges otherwise payable by the Customer for the month following the month giving rise to the compensation. Cash compensation will be made in case such payables do not exist.

3.10.3. Performance Guarantees

Performance guarantees are given to the Customer. The Provider will compensate the Customer when the Service performance is below guaranteed levels. Availability is defined in Paragraph 9.1 of this Annex C3.

3.10.4. Availability

Calculation of service availability and of the excess above the maximum allowable unavailable time is calculated according to the figures below, and based upon the event reports as recorded in the trouble ticket system and the monitoring tools.

Guaranteed Service Availability Per SERVICE MEASUREMENT PERIOD	Unavailable Time Limit (UTL) (per service item - minutes/calendar month)
99.4%	259 minutes per month
99.5%	219 minutes per month
99.9%	43 minutes and 50 seconds per month
99.95%	21 minutes per month

3.10.5. Calculation of Unavailable Time and Reimbursement will use the following formula:

$$R = \frac{(UT - UTL)}{7200} \times T$$

where

<i>UT</i>	=	<i>Unavailable Time in minutes not due to the Customer or its agents ((100 – current monthly availability %) x number of minutes in the month)).</i>
<i>UTL</i>	=	<i>Unavailable Time Limit</i>
<i>T</i>	=	<i>Tariff/month</i>
<i>R</i>	=	<i>Reimbursement, to a maximum of 100% x T</i>

3.10.6. The maximum compensation in any month is 100% of the monthly charge.

### 3.10.7. Network Latency

3.10.7.1. Network Latency (or round trip delay) is defined as the average time taken for an IP packet to make a round trip between backbone hubs on the Provider’s network backbone. Unless stated otherwise in the relevant SoW, the monthly network latency performance target for IP Transit services is as follows:

- Less than or equal to 35 ms within Europe
- Less than or equal to 95 ms across the Atlantic

3.10.7.2. If the average monthly latency target is not met, the Service shall be regarded as unavailable.

3.10.7.3. The Provider shall set out the mechanism for measuring latency on their backbone network in the relevant SoW. In accordance with para 12.2.2 above, the Provider shall report latency figures for each Service Item showing the actual latency value above the committed targets and the duration of the exceeded latency target.

### 3.10.8. Packet Loss

3.10.8.1. The term “Packet Loss” means the failure of packets of data travelling across a network to reach their intended destination.

3.10.8.2. Packet loss within the Provider’s backbone will not exceed 0.05% of packets during a calendar month.

3.10.8.3. Packet loss in excess of the target will be compensated as follows:

Packet Delivery	Service Level Credit (% of the total charges for the affected Service Item)
99.5 – 99.949%	10%
99 – 99.49%	20%
98 – 98.99%	30%
97 – 97.99%	40%
96 – 96.99%	50%
95.99% or less	100%

3.10.8.4. Packet losses at values in excess of 1% or more over a 24 hour period are classed as a Critical Service Failure, (see clause 22.3.3 in the main MSA).

#### 3.10.8.5. Measurement of Packet Loss

3.10.8.5.1. The Provider shall set out the mechanism for measuring Packet Loss on their backbone network in the relevant SoW

### 3.10.9. Mean Time between Failures (MTBF)

3.10.9.1. MTBF is expected to be at least see the Service Level Target given in the table at the beginning of this Annex for each service item. Where the MTBF target is exceeded, compensation at the rate of one day’s pro-rata part of the recurrent Service fee per Failure will be made, from (and including) the fourth (4th) Failure in each calendar month.

3.10.9.2. Calculation of MTBF will be based upon the event reports as recorded in the Trouble Ticket system and the monitoring tools. Subject to Clause 11.4.1, all events as measured over each calendar month that contribute to unavailable time will count as a Failure.

3.10.9.3. Where Availability or MTBF compensation calculated in accordance with this Annex A3 have both exceeded the minimum requirements, compensation payments will be added but the total combined payment in each calendar month will not exceed 100% of the monthly recurring charges paid for the Services affected.

**3.10.10. In-service Bit Error Rate (BER)**

3.10.10.1. Where NORDUnet observes that a circuit service item is experiencing an unacceptable level of errors (by means of calculating a circuit bit error rate derived from observed packet loss statistics or monitoring of SDH path overhead) NORDUnet will raise a trouble ticket with the Supplier’s help desk stating that the circuit is effectively unavailable (not fit for purpose) due to its high level of errors. The maximum number of bit errors is  $10 \times 10^{-12}$ .

3.10.10.2. Subject to further confirmation from the NORDUnet Operations team, the Supplier may then take the circuit out of service at an agreed time to perform end-to-end bit error rate tests. Should these tests show that the circuit is experiencing an unacceptable level of errors then the circuit will be deemed to have been unavailable from the time that the original trouble ticket was raised. The period of unavailability in this context will be deemed to have ended when the Supplier makes the circuit available for use by NORDUnet, provided that the NORDUnet Operations team accepts the repaired circuit, following any further acceptance tests that NORDUnet may wish to perform on that circuit.

**3.10.11. Minimum Requirements for BER and MTBF**

	Guaranteed Value
BER	$10^{-12}$
MTBF	10 Days

**3.10.12. Service Restoration Times**

3.10.12.1. The Customer requires the ‘percentage achieved’ column to display the percentage of tickets which were restored within the specified timescales within each calendar month. See example in Table below:

Maximum time to repair/replace any terrestrial service affecting field-replaceable unit (e.g. interface card/board)	Percentage achieved within calendar month	Ticket Numbers
Between 0 – 6 hours	80%	8 tickets
Between 6 – 10 hours	0%	Not applicable
Over 10 hours	20%	2 tickets

3.10.12.2. Where there is an undersea fibre cut or a terrestrial cable cut that is beyond the Provider’s reasonable control, the Parties agree that as soon as reasonably practicable after the fault is reported they shall meet to discuss in good faith whether there are any reasonable alternative routes available which may be used for the provision of the Circuit, taking into account commercial and practical constraints.

3.10.12.3. In the event of re-routing a circuit, round trip delay on the circuit should not increase by more than 15% of original RTD as measured during testing.

Reports - the monthly reports will be delivered on time and as specified a minimum of 95% of the time.

#### **4. ACCEPTANCE TESTS AND ACCEPTANCE CRITERIA (to be updated in accordance with tender reply)**

The expected Acceptance Test Start Date (ATSD) for each Circuit Service Item will be, at the latest, 10 working days prior to the CDD, but not before NORDUnet has received a copy of the Provider's test results, and will have the following stages. The CDD may be brought forward by up to 20 working days subject to mutual written agreement from both parties.

##### ***Stage 1. Notification.***

The Supplier will notify NORDUnet 3 working days before the expected ATSD whether the Service Item will be handed over to NORDUnet for testing on the date planned, or if there is a delay expected the Supplier will inform NORDUnet of the duration of the delay. For notification, the Supplier will use the document template that will be supplied by NORDUnet for this purpose.

##### ***Stage 2 Handover for Acceptance Testing***

Before handing over the circuit for testing by NORDUnet, the Supplier will perform the appropriate ITU-T recommended tests and a 24-hour bit error rate test during which no bit errors are recorded.

On completion of the ITU-T tests the Supplier will inform NORDUnet by e-mail, using the document template supplied by NORDUnet for this purpose, and will provide a copy of the test results. For SDH circuits, this will include the test reports for both the primary and secondary circuits. NORDUnet will confirm receipt of the fax to the Supplier.

The ATSD will be the next working day after the test results are received by NORDUnet.

##### ***Stage 3 Acceptance Testing***

NORDUnet will have 10 working days from the ATSD to carry out tests over the link. If no problems arise, the procedure moves straight to Stage 5 (omitting Stage 4)

##### ***Stage 4. Acceptance Test Problem Resolution***

If NORDUnet identifies problems during the ATSD, the Supplier will be informed as soon as possible. It is the Supplier's responsibility to work in a timely fashion with NORDUnet to determine the source of the problem. If the source of any problems is determined to be in the Service provided by the Supplier, the Supplier will remedy the problem. If the source of any such problem is determined to be outside the Supplier's Service or in the customer equipment, NORDUnet will take appropriate action and continue its testing.

If the source of the problem is in the Service provided by the Supplier, a further period of acceptance testing will take place once the remedial action has been completed. The procedures will follow Stages 2, 3 and (if necessary) 4 as described above.

##### ***Stage 5 Service Acceptance***

The Service Items must be handed over to NORDUnet and be operational by the Committed Delivery date (CDD)

NORDUnet will be deemed to have accepted the Service Item when NORDUnet declares that the link operates satisfactorily or if the allowed acceptance test period expires without NORDUnet providing evidence to the Supplier of unsatisfactory operation. The OSD will be set as the date NORDUnet accepts

or is deemed to have accepted the Service Item. The CDD must be the same date as the OSD unless prior written permission is provided by NORDUnet.

### Summary of Acceptance Testing Procedure

The Supplier must provide the following handover documentation:

- Incident management procedure.
- Scheduled maintenance procedure.
- Escalation procedure.
- Online tools trouble ticket system instructions and logins.
- Circuit ID's.

Acceptance Testing Stages	Timescales	Comment
Stage 1 Notification of ATSD	At least 3 working days before ATSD	
Stage 2 Handover for Acceptance Testing		Supplier provides test results to NORDUnet
Stage 3 Acceptance Testing	Up to 10 working days from the ATSD	
Stage 4 Acceptance Test Problem Resolution (This stage only required where problems found during acceptance testing)		NORDUnet needs to provide evidence that the service is unacceptable. When remedial action is completed, Stages 2 and 3 are repeated.
Stage 5 Committed Delivery Date and Operational Start Date	The service is required to be delivered and operational by the Committed Delivery Date. The CDD must be the same date as the OSD unless prior written permission is provided by NORDUnet for the OSD to differ from the CDD.	The date that the Service is accepted by NORDUnet is the Operational Start Date and billing will commence from this date.

# 18 Appendix 2 Remuneration

# 19 Appendix 3 The Provider's Tender Reply

## 20 Appendix 4 Parent Company Guarantee

This guarantee is rendered by The Provider Holding ("Parent") in its capacity as the parent company of The Provider.

Parent is aware of the agreement regarding ANA-100G entered into by and between The Provider and NORDUnet A/S dated [DATE] ("Agreement") and of all obligations undertaken by The Provider in said agreement. Being The Provider's parent company, Parent will strive to ensure that The Provider will have all necessary means to be able to comply with and fulfil all obligations pursuant to the Agreement throughout the entire contract period. Parent will use all commercially reasonable efforts to secure this.

In the event that The Provider commits a material breach of its obligations under the Agreement which entitles NORDUnet A/S to terminate the Agreement because of such breach, Parent hereby undertakes to compensate NORDUnet A/S (or any assignee hereto) for its direct losses or damages suffered as a consequence of such termination. The maximum aggregated liability accepted by Parent under this guarantee is limited to an amount equal to the remuneration actually paid from NORDUnet A/S to The Provider under the Agreement during the last 12 months prior to the claim for compensation was presented to Parent.

Parent is not liable to NORDUnet A/S or any assignee hereto for any indirect or consequential loss or damage. For these purposes, "indirect or consequential loss or damage" includes, but is not limited to, loss of revenue, profit, anticipated savings, business or goodwill, loss or corruption or destruction of data.

In the event that NORDUnet A/S deems The Provider to have committed, or being likely to commit, a material breach of its obligations under the Agreement, NORDUnet A/S shall send a copy of the notice to The Provider cf. the Agreement Clause 3.a giving a 10 (ten) days period to remedy the breach, and thereby inform Parent and giving Parent a possibility to ensure that The Provider complies with its undertakings. If NORDUnet A/S actually terminates the Agreement, a copy of the termination notice shall be sent simultaneously also to Parent.

Any notices to Parent shall be sent to:

The Provider Holding Company

Att.

This guarantee shall be governed, construed and interpreted according to the material laws of Denmark without respect to its principles of conflict of laws.

All disputes arising between the Parties in connection with this guarantee or its validity shall be finally settled by the ordinary courts of Denmark and in accordance with Danish law.

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PLACE, DATE 2014

Signed by the Provider Holding