**Ucom CJSC**

**Procurement of Goods, for “Agarak” Data Center, comprising in 4 Lots**

RFQ

Request for Quotations (RFQ)

republic of Armenia

Ucom CJSC, Procurement of Goods, for “Agarak” Data Center, comprising in 4 Lots

RFQ No: TS-AG-22-1

# **General Conditions**

## Introduction

#### Ucom CJSC is a broadband service provider with licenses for voice, international gateway, and Internet services.

#### This document comprises Ucom CJSC and appears as a Request for Quotations (RFQ) for the Procurement of the following Goods, Cooling system (Lot 1), Tier-3 ATS (AVR) (Lot 2), Diesel generator (Lot 3), and Uninterruptible power supply system equipment (UPS) (Lot 4).

#### This RFP has been issued to obtain all needed services and technical requirements.

## Requirements

#### The successful bidder is expected to supply customized equipment described in the technical requirements.

#### Bids are being invited for individual lots (contracts) or for any combination of lots (packages), prices quoted shall correspond to 100 % of the items specified for each lot. Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package.

#### All equipment proposed by The Supplier shall be dimensioned in accordance with the technical specification. The Bidder may substitute alternative solutions, provided that it demonstrates to the Purchaser’s satisfaction that the use of the substitute(s) will result in the System being able to perform substantially equivalent to or better than that specified in the Technical Requirements.

#### All equipment supported by the Supplier should be newly manufactured.

#### The Supplier shall ship the equipment based on the following delivery terms: INCOTERMS DAP Agarak city, Syunik province.

#### Hardware Delivery period; Lot 1 65-90 Days; Lot 2 65-90 Days; Lot 3 65-90 Days; Lot 4 65-90 Days.

#### The Supplier shall provide the supporting documentation, including user manuals in the English language, for its equipment and training/certification of 2 company relevant employees.

#### The Supplier shall provide factory warranty, for Lot 1 - 3 years; Lot 2 - 3 years; Lot 3 - 3 years; Lot 4 - 3 years, starting from the date of signed Final Acceptance Certificate.

## Technical conditions, Installation and Administration

#### Requirements are described in the below supporting technical document, for each Lot.

**Other requirements**

#### By submission of documentary evidence in its proposal, the Bidder must establish to the Purchaser’s satisfaction:

#### that, in the case of a Bidder offering to supply key goods, that the Bidder does not itself produce, the Bidder is duly authorized by the producer to supply those components in the Purchaser’s country under the Contract(s) that may result from this bidding. This will be accomplished by including the Manufacturer’s/Distributor’s Authorization(s) in the proposal /appendix 2/.

#### that, if a Bidder proposes Subcontractors for key services these Subcontractors have agreed in writing to serve for the Bidder under the Contract(s) that may result from this bidding.

## Price quotation – As specified in the point 1.5 above, the evaluation will be done for lots (contracts) or for any combination of lots (packages), price quotation should be prepared using form of appendix 1 specifying words and figure, as well as the various amounts and the respective currencies. The compression will be done based on Incoterms DAP Agarak, Syunik province, for all Lots.

## Authorized representatives of the eligible bidder shall be entitled to request clarifications regarding all of the RFQ documents by submitting requests by email to: Mr. Hovak Podosyan (hovak.podosyan@ucom.am) and Mr. Arthur Soghomonyan (arthur.soghomonyan@ucom.am).

## At any time prior to the deadline for submission of proposals, Ucom may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, amend the RFQ or cancel the RFQ process. The request for clarification and the response shall be in writing.

## The Supplier shall bear all its cost for the tendering and RFP process. Ucom shall under no circumstance be liable for any cost for Supplier’s tendering process, regardless of whether or not the Supplier is selected.

## The proposal prepared by the Bidder and all correspondence and documents related to the proposal exchanged by the Bidder and Ucom shall be written in English, all data, documents, descriptions, instructions submitted by the Bidder and all communication between the Parties shall be in the English Language.

## The Bidders shall submit their proposals electronically to Mr Hovak Podosyan (hovak.podosyan@ucom.am ) and Mr. Arthur Soghomonyan (arthur.soghomonyan@ucom.am), not later than January 31 of 2022 year, 18:00 (Local time), and the letter should be clearly marked RFP NO: TS-AG-22-1. Later bids may be rejected by the Purchaser.

## Proposals shall remain valid, at a minimum of 120 days after the deadline date for proposal submission prescribed by the Purchaser. A proposal valid for a shorter period may be rejected by the Purchaser as non-responsive.

## For evaluation and comparison purposes, the Purchaser shall convert all proposal prices expressed in various currencies and amounts into a single currency AMD, using the selling exchange rate established by the Central Bank of Armenia on the Proposals opening date.

## *This RFQ and other related documents (as well as the communication) included are strictly confidential, the “Receiving Party” shall keep confidential and shall not, divulge to any third party any documents, data, or other information. Failure of the Bidder to comply with the request may result in the rejection of its Proposal and further cooperation.*

## *Notwithstanding the above point, the Receiver may furnish Confidential Information of this RFP: (i) to its support service suppliers and their subcontractors and its subcontractor to the extent reasonably required for them to perform their work under their contracts; in which event the Receiving Party shall ensure that the person to whom it furnishes Confidential Information of the Disclosing Party is aware of and abides by the Receiving Party’s obligations under this point as if that person were party to the Contract in place of the Receiving Party.*

## The Purchaser shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the bidding documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily. Other Contract points shall remain negotiable between the parties.

**Technical conditions**

**Cooling system (Lot 1)**

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| **Russian** **Требуемые Технические характеристики для систем охлаждения Дата центра «Агарак»"** | **English** **Technical requirements for Data Center "Agarak" cooling systems** |
| 1. **Внутренний блок испарителя**
	1. Должна помешатся в 2 ряда в каждом ряду по 3 испарителя
	2. Общий размер полщади испорителей под потолком

Высота – 4,85мШирина – 3,42мГлубина от потолка – 0,79м* 1. Расстояния от заднойи переднох стенки 1,20м
	2. Расстояния от боковых стен 0,52м
	3. Control systems - Remote IP monitor Centralized min 10 unit
	4. Отвод дренажной воды – устанавить дренажный насос при отсутсвии в комплете.
1. **Внешний блок конденсера**
	1. Общий размер полщади для внешных блоков

Высота – 2,30мШирина – 1,5мДлинина – 6,20м 2.2 Расстояния от стенки здания 0,36м 2.3 Расстояния от земли 0,20м 2.4 Внешные блоки должны устанавливатся на металическом раме 6,20х1,5х0,20. 2.5 Рабочий диапазон Охлаждения - -15C +50C 2.6 Рассширительный клапан – Электронный 2.7 Регулирование производительности - С инверторным управлением 2.8 Герметизация отверстий пеной и др необходимыми материалами.**Пароувлажнение****ТЗ по монтажным работам** 1. Пароувлажнитель должен быть настенного типа
2. Пароувлажнитель должен иметь 3-х фазные нагреватели рассчитаные на общую мощность потербления 10-11квт с электронгревателями
3. Производительность пара – 13-14кг/ч
4. Вес не более 25-27кг
5. Вентилятор доводчик пара должен быть рассчитан на распределение пара объемом до 17-19кг/ч
6. Гидросистема пароувлажнителя должна быть остнащена насосом (220в однофазный) воды не мене 40метров максимальнего напора с производительностью 2,4м^3/час со своим автоматическим гидростатом
7. Резервуар воды ёмкостью 1000л теплоизолированный с запорным ветилем.
8. Пароувлажнитель должен быть оснащен дополнительным , вторым выносным датчиком влажности
9. Пароувлажнитель должен иметь возможность быть подключенным к IP сети и управляться дистанционно.
10. Наличие протоколов SNMP и HTTP обязательное

**ТЗ по монтажным работам и изготовление дополнительных узлов**1. Медные трубы с толщиной стенки 0,8мм
2. Теплоизиляция - 3/8 дюйма
3. Прокладка трубопровода в сеточных лотках
4. Изготовления металлической конструкции – опоры на оснавания пункта 2.1
5. Монтаж внешних блоков на металлической контрукции-опоре
6. Монтаж внутренних блоков на потолок помещения
7. Изготовлениe 6-и жестяных деффузоров с углом поворота потока воздуха на 90 градусов для внутренних блоков
8. Монтаж 6-и жестяных деффузоров с углом поворота потока воздуха на 90 градусов на внутренних блоках
9. Проделка отверстий для проклаки труб и эл. Кабелей
10. Электропитание - Фаза 3~ 50гц/380-415в (Диапазон рабочих напряжений - 342-457 в)
11. Холодопроизводительность каждого внутренного блока 22 - 25Kw
12. Монтаж эл. Расспределительной шитовой на стену
13. Монтаж необходимых автоматов ввода и расспределения в соответствия с паспортными рекомендациями производителя
14. Маркировка всех типов кабелей и труб с предстовлением таблицы маркировки
15. Все кабели эл. Системы должны быть медными множилными с двойной изоляции ПВХ
16. Монтаж кабелей под зажимами автоматов должны производиться с медными лужонными клеймоми соответствующего сечения.

**Необходимое оборудование**Кондиционер 22-25Kw -6шт. или 50Kw 3шт.Электро-распределительный металлический шкаф с полным набором автоматов - 1 ком. | **1. Internal evaporator module:**1.1 Should fit in 2 rows in each row with 3 evaporators1.2 Total area of evaporators under the ceilingHeight - 4.85mWidth - 3.42mDepth from ceiling - 0.79m1.3 Gap from back and front walls 1.20 m1.4 Gap from side walls 0.52m1.5 Control systems - Remote IP monitor Centralized min 10 unit1.6 Drain water system – install drain pump in case of absences in the set.**2. Outdoor condenser module:**2.1 General scale size for input blocks:Height - 2.30 m:Width - 1.5m:Height - 6.20m: 2.2 Gap from walls of buildings 0.36 m: 2.3 Ground clearance 0.20 m: 2.4 Inner blocks should be installed on a metal shoulder 6.20x1.5x0.20. 2.5 Working range Cooling - -15C + 50C: 2.6 Expansion valve - Electronic: 2.7 Productivity Regulation - Inverter Management: 2.8 Sealing foam insulation, etc. necessary materials.**DC area automatic steam humidification** **Terms of reference for installation work** 1. The steam humidifier must be wall-mounted type.
2. The steam humidifier must have 3-phase heaters (not electrolyze type designed for a total power consumption of 10-11kW with electric heaters
3. Steam output – 13-14kg/h.
4. Weight no more than 25-27kg.
5. The fan of the steam supply device must be designed for steam distribution with a volume of up to 17-19kg / h.
6. The hydraulic system of the steam humidifier must be equipped with a water pump (220v single phase) of at least 40 meters of maximum pressure with a capacity of 2.4m ^ 3 / hour with its own automatic hydrostat
7. Thermally insulated water tank with a capacity of 1000 liters with a shut-off veil.
8. The steam humidifier must be equipped with an additional, second far end humidity control sensor.
9. The steam humidifier must be able to be connected to an IP network and be controlled remotely.
10. Availability of SNMP and HTTP protocols is obligatory.

**Tech. requirements to materials:** 1. Copper pipes with a wall thickness of 0.8mm2. Thermal insulation - 3/8 "3. Laying the pipeline in mesh trays4. Manufacturing of a metal structure - support on the equipment of paragraph 2.15. Installation of outdoor units on a metal support structure6. Installation of indoor units on the ceiling of the room7. Manufacturing of 6 tin air metal diffusers with an angle of air flow rotation by 90 degrees for indoor units8. Installation of 6 tin air metal diffusers with an angle of air flow rotation by 90 degrees for indoor units9. Making wall holes for piping and el. cables10. Power supply - Phase 3 ~ 50Hz / 380-415V (Operating voltage range - 342-457V)11. Cooling capacity of each indoor unit 22 - 25Kw12. Installation of el. d box on the wall13. Installation of the necessary automatic breakers for mains input and el. distribution in accordance with the manufacturer's manuals and recommendations14. Labeling all of types of cables and pipes with the presentation the labeling final table15. All cables el. systems should be copper multi-core with double PVC insulation16. The installation of cables for automatic breakers must be carried out with copper brass tips with the corresponding section area.**Necessary equipment**Air conditioner 22-25Kw -6 pcs. or 50Kw 3pcs.Electrical distribution metal cabinet with a full set of automatic breakers - 1 set. |

**Technical conditions**

**Tier-3 ATS (AVR) (Lot 2)**

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| **English (only)** **Technical Requirements -Tier-3 ATS for Agarak Datacenter** |
| **ATS PLC must support**PLC types must supporting MQTT(Message Queuing Telemetry Transport) protocol and applicationsPLC must Resolve function block and must support DNS.Hardware infrastructure must be able to send data to the MQTT Broker to enable device to establish a connection to the IP networkPLC must support online parameters changes PLC must have plugged internal battery to support date , time and internal configuration.PLC must support SNMP protocol PLC need to have ability to configure a Gateway to connect to the IP networkPLC must support Ethernet base IP networkConceptual design of ATS cabinets attached ATS should work according to the attached algorithm below.**Technical requirements for the switchgear 650A with ATS**Operating mode of the controller of three input mains ATS1. Completely disconnected ATS2. Manual mode of ATS control3. Full automatic operation with one input mains 0.4 kV and DG14. Full automatic operation with one input mains 0.4 kV and DG1 and DG25. All modes of operation of the controller and the electromechanical part of the automatic transfer switch must be supported by power supply from the separate UPS line.6. The operating modes electrical switch is mechanical with four positions.**PLC controller firmware variables must be:**i1 - the number of power fluctuationsi2 - the number of continuous transitions to batteriesT1 - time to measure fluctuationsT2 - time for transition to initial modeT3 - power outage time delay (in conjunction with the i2 signal)T4 is the delay time for recharging the batteries of the platform UPSN - the number of process transitionsTD1 - operating time of DG1 or DG21. **ALGORITHM OF ATS PLC OPERATION IN JOINT WITH DG1, DG2 AND CITY MAINS POWER**

To integrate the operation of the ATS and UPS of the platform, it is necessary to additionally add to the automatic control circuit of the ATS the alarms (when switching to batteries) of UPS 1 or UPS2 by "input 1" and the activation of the transition from DG1 to DG2 and back when TD1-hour operating time of one of the two diesel generators. Normal operation assumes that the load is powered from input 1. The initial, starting operating mode of the ATS is el. power supply from input 1.When the alarm signal appears, and UPS 1 or UPS2 transfer to the batteries by mains input 1 bad quality, the PLC counting number of fluctuations of the mains power supply in variable “i1” during the time of variable “T1”. If the specified number of "i1" is exceeded, it is necessary to switch to the operation mode from DG1 or DG2 through a motorized section switch for the set time of the variable "T2". After the expiration of the time of the variable “T2”, the transition to the initial mode is carried out if there is a high-quality (see below note) power supply of the ATS at mains input 1. In the event of an ongoing signaling, the alarms of UPS 1 or UPS 2 at mains input 1 (transfer to batteries) "are triggered in the number of variable" i2 "times during the time of the variable “T3” there is a repeated transition to work from the DG1 or DG2 through the section switch for the set time of the variable “T2”. Such a cycle of transition from the first input to DG1 or DG2 through the section switch in case of repeated incidents, fluctuations at mains input 1 and when switching to batteries of UPS 1 or UPS2, it is necessary to continue the process variable "N" a number of times. If variable “N” exceeds the specified number, go to variable time “T3” and reset variable “N” and variable “T3”. The power supply of the data center remains in the DG mode support. In the absence of recurring incidents at mains input 1 (transfer of the UPS to batteries), the ATS switches to its initial state. In case of unsuccessful start or accidental stopping of DG1 or DG2, it is necessary to start a non-active DG, turn off the motorized automatic switch of the previously active DG and turn on the motorized automatic switch of the last successfully started DG by ignoring the operating time counter of the last variable “TD1”. The platform DG continues to operate in the variable “T3” time interval mode, in which an unsuccessful start or a sudden stop of one of the any DG occurred.**2. ALGORITHM OF THE AVR WORKING TOGETHER WITH DGU1 AND CITY MAINS POWER**Normal operation assumes that the load is powered from mains input 1. The initial, starting operating mode of the ATS is mains power supply from 1 input.Must be provide a mechanical switch for the PLC controller operation mode named "**Operation mode with one mains input like 0.4 kV and DG1".****Algorithm of the controller for "Operation mode with one mains input like 0.4 kV and DG1".**When the alarm signal appears, and UPS 1 or UPS2 transfer to the batteries by mains input 1 bad quality, the PLC counting number of fluctuations of the mains power supply in variable “i1” during the time of variable “T1”. If the specified number of "i1" is exceeded, it is necessary to switch to the operation mode from DG1 through a motorized section switch for the set time of the variable "T2". After the expiration of the time of the variable “T2”, the transition to the initial mode is carried out if there is a high-quality (see below note) power supply of the ATS at mains input 1. In the event of an ongoing signaling, the alarms of UPS 1 or UPS 2 at mains input 1 (transfer to batteries) "are triggered in the number of variable" i2 "times during the time of the variable “T3” there is a repeated transition to work from the DG1 through the section switch for the set time of the variable “T2”. Such a cycle of transition from the first input to DG1 through the section switch in case of repeated incidents, fluctuations at mains input 1 and when switching to batteries of UPS 1 or UPS2, it is necessary to continue the process variable "N" a number of times. If variable “N” exceeds the specified number, go to variable time “T3” and reset variable “N” and variable “T3”. The power supply of the data center remains in the DG1 mode support. In the absence of recurring incidents at mains input 1 (transfer of the UPS to batteries), the ATS switches to its initial state.In the event of an emergency at DG1 and with the simultaneous lack of standard / high-quality power supply of 0.4 kV at input 1 and / or its complete absence, the ATS turns off all motorized switches and the controller waits for the standard power supply at mains input 1. When 0.4 kV power appears at mains input 1, it is triggered motorized automatic mains input 1 and motorized automatic section switch. ATS switches do not guarantee AC power supply mode of the data center. Since the ATS has 2 mains inputs DG1 and DG 2 where DG2 is not connected by the corresponding diesel generator, it is necessary to provide firmware blocking of the operation of the DG2 input until will not connected to the ATS.**Note**- High-quality power supply - the data center supply voltage in relation to the working zero can fluctuate within 207 -245V. The mains frequency may fluctuate within 50Hz +/- 3%**Measurement instruments and signal lights on the panel board**According to the Ucom standard for the construction of data centers, all electronic components of ATS/switchgear must be from ABB or Schneider Electric and must have an Ethernet input for remote monitoring / control1. Three-phase status signal light indicators must be installed on each entry door.2. Device universal digital measurement. with is a network analyzer with 4 programmable I/O, aux supply 48-240 V AC/DC, Bluetooth and Modbus TCP/IP on each entry door3. ATS PLC range consists of various CPUs, I/O modules, communication modules, communication interface modules and accessories.4. On the door of the cabinet of the PLC controller, there should be installed el.buttons for the manual control mode of the automatic transfer switch with the inscriptions "Start" and "Stop" with light indication of the command execution. Additional functional labels above and below the buttons are welcome.5. The dimensions of the cabinets should not exceed the specified limits to fit in to the data center:Depth - 600 - 650 mmWidth - 600 - 850 mmHeight - 2000 - 2100 mmType of all cabinets is floor standing with plinth and without side caps**Conceptual specification**

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| Description name | Qty. |
| Universal digital measurement device with ethernet support | 3 |
| Current transformer 600 / 5A | 9 |
| PLC Prog.Logic Controller 512kB 24VDC,ETHERNET,2xRS232/485,FBP SD-Card Slot,LCD Display | 1 |
| PLC expansion module | 2 |
| Three-phase monitoring relay | 3 |
| Rotary Switch, 3 Position, 1 Pole, 60 °, 10 A, 500 V, OM | 1 |
| Backlight lamp yellow | 9 |
| Backlight lamp green | 4 |
| Backlight lamp red | 4 |
| PUSHBUTTON green with 1 NO dry contact | 4 |
| PUSHBUTTON red with 1 NO dry contact | 4 |
| Pushbutton black without backlight lamp | 1 |
| Pushbutton blue without backlight lamp | 1 |
| Motorized C.BREAKER THREE-POLE WITH FRONT TERMINALS AND SOLID-STATE RELEASE IN AC 630 А | 4 |
| 3-pole, front operated, base mounted switch-diconnector, handle and shaft are not included, terminal bolt kit included | 3 |
| C.BREAKER FIXED THREE-POLE WITH FRONT TERMINALS AND THERMOMAGNETIC RELEASE 450 A | 2 |
| C.BREAKER 160A FIXED THREE-POLE WITH FRONT TERMINALS AND THERMOMAGNETIC RELEASE 1600 A | 12 |

On the basis of this technical requirement, an algorithm for the operation of the control circuit of the ATS/switchgear system is being developed. The final check of the ATS operation in accordance with the given algorithm by the manufacturer after the manufacture of the ATS and switchgear. The final adjustment of the operation algorithm in accordance with the peculiarities of the technological process of operation must be done at the customer's facility with the visit of a factory specialist.**ATS/Switchgear conceptual design** |

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**Technical conditions**

Diesel generator (Lot 3)

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| **Russian** **Технические требования дизель генератора для** **Дата центра «Агарак»** | **English** **Diesel generator technical requirements for****Data center "Agarak"** |
| **Дизельный двигатель**Должна быть 4-тактовый , 6-и цилиндровый с водяным+антрифриз охлаждением и фильтром слива водоотделителяЭлектросистема должна быть 24-х вольтнойДолжен иметь фильтр для сухого воздуха, радиатор с вентиляторомДолжен быть оснащен датчикоми уровена антрифриза в радиатореДолжен иметь электронный регулятор поддежки оборотовДолжен иметь защиту горячих узлов и движущихся узлов**Генератор**Должна иметь самовозбуждение и саморегуляцияДолжна иметь 4-полюсаДолжна иметь регулятор AVRДолжна иметь корпус (согласно IEC-34-5)Должна иметь класс защиты IP23Должна иметь изоляцию H-классаДолжна иметь гибкую дисковую муфтуДолжна иметь тип покрытия краски вакуумное пропитывание**Обшие харастеристики промышленого изделия**МОЩНОСТЬ kVA 250(PRP)МОЩНОСТЬ kW 200(PRP)НОМИНАЛЬНАЯ ЧАСТОТА ВРАЩЕНИЯ r.p.m. 1500СТАНДАРТНОЕ НАПРЯЖЕНИЕ V 400/230Наличие сертификата качества ISO 9001Габариты:Длина – 3500-3900 ммВысота - 2300-2900 ммШирина – 1100 -1700 ммДолжен иметь емкость топливного бака – Стальная цистерна 800-1000лДолжен иметь ПУСКОВУЮ СИСТЕМУ - требуемый АКБ 2х50А/ч Должен иметь противовибрационный амортизаторДолжен иметь усиленную проушину для подъемаДолжен иметь датчик уровня топливаДолжен иметь топливный бак со сливной крышкойДолжен иметь кнопку аварийной остановкиДолжен иметь топливный бак со сливной крышкой**Гарантийные обязательства**Производитеь должен представить гарантию изделия минимум 3 года . Производитеь должен представить подробный инструкцию по монтажу изделя.**Тех.требования по наличию запасных частей и трейнингу**Производитеь должен дать полный список рассходных запасных частей со всеми инструкциями и таблицами по времени замены.Производитеь должен указать регианалного представителя откуда можно покупать запасны части.Производитеь должен укомплектовать поставку необходимым типом и колличеством моторного масла.Производитеь должен организавать трейнинг по конфигурации и эксплуатации програмного обеспечения/контролера  | **Diesel engine**Must be a 4-stroke, 6-cylinder with water + antifreeze cooling and a water separator drain filterThe electrical system must be 24 voltMust have a dry air filter, radiator with fanMust be equipped with antifreeze level sensor in the radiatorMust have an electronic speed controlMust have protection for hot parts and moving parts**Generator**Must have self-excitation and self-regulationMust have 4 polesMust have AVR regulatorMust have a housing (according to IEC-34-5)Must have protection class IP23Must have H class insulationMust have flexible disc couplingMust have paint coating standard (Vacuum impregnation )**General characteristics of the industrial product**POWER kVA 250 (PRP)POWER kW 200 (PRP)RATED SPEED r.p.m. 1500STANDARD VOLTAGE V 400/230Availability of quality certificate ISO 9001Dimensions:Length - 3500-4200 mmHeight - 2200-2900 mmWidth - 1000 -1700 mmMust have fuel tank capacity - Steel tank 800-1000LMust have a STARTING SYSTEM - required battery 2x50A / hMust have anti-vibration shock absorberMust have reinforced lifting hooks for crane hoisting Must have a fuel level sensorMust have a fuel tank drain plugMust have an emergency stop buttonMust have a fuel tank with a drain plug**Warranty commitment**The manufacturer must provide a minimum 3 year product warranty. The manufacturer must provide detailed instructions for installing the product.**Technical requirements for the availability of spare parts and training**The manufacturer must provide a complete list of consumable spare parts with all instructions and tables for replacement times.The manufacturer must indicate the local representative where the spare parts can be purchased from.The manufacturer must complete the supply with the required type and quantity of engine oil.The manufacturer should organize training on the configuration and operation of the software / controller |

**ХАРАКТЕРИСТИКИ КОНТРОЛЛЕРА**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Описания технических требований контролера ДГУ | Показания Генератора | Показания лини электропитания | Показания двигателя | Средсво защиты двигателя | Средсво защиты генераторной установки | Счечики | Сеть | Функции |
| Межфазное напряжение | √ | √ |   |   |   |   |   |   |
| Напряжение между нейтралью и фазой | √ | √ |   |   |   |   |   |   |
| Ток | √ | √ |   |   |   |   |   |   |
| Частота | √ | √ |   |   |   |   |   |   |
| Полная мощность (кВт) | √ | √ |   |   |   |   |   |   |
| Активная мощность (кВт) | √ | √ |   |   |   |   |   |   |
| Реактивная мощность (кВт) | √ | √ |   |   |   |   |   |   |
| Коэффициент мощности. | √ | √ | √ |   |   |   |   |   |
| Температура охлаждающей жидкости |   |   | √ |   |   |   |   |   |
| Давление масла |   |   | √ |   |   |   |   |   |
| Уровень топлива (%) |   |   | √ |   |   |   |   |   |
| Напряжение батареи |   |   | √ |   |   |   |   |   |
| Об/мин |   |   | √ |   |   |   |   |   |
| Напряжение генератора переменного тока для заряда |   |   | √ |   |   |   |   |   |
| Высокая температура воды |   |   |   | √ |   |   |   |   |
| Высокая температура воды по датчику |   |   |   | √ |   |   |   |   |
| Низкая температура воды по датчику |   |   |   | √ |   |   |   |   |
| Низкое давление масла |   |   |   | √ |   |   |   |   |
| Низкое давление масла по датчику |   |   |   | √ |   |   |   |   |
| Низкий уровень воды |   |   |   | √ |   |   |   |   |
| Непредвиденное завершение работы |   |   |   | √ |   |   |   |   |
| Топливный резервуар |   |   |   | √ |   |   |   |   |
| Топливный резервуар по датчику |   |   |   | √ |   |   |   |   |
| Ошибка при остановке |   |   |   | √ |   |   |   |   |
| Отказ батареи |   |   |   | √ |   |   |   |   |
| Отказ зарядного генератора  |   |   |   | √ |   |   |   |   |
| Повышенная частота вращения |   |   |   | √ |   |   |   |   |
| Недостаточная частота вращения |   |   |   | √ |   |   |   |   |
| Отказ при пуске |   |   |   | √ |   |   |   |   |
| Аварийный останов |   |   |   | √ |   |   |   |   |
| Высокая частота |   |   |   |   | √ |   |   |   |
| Низкая частота |   |   |   |   | √ |   |   |   |
| Высокое напряжение |   |   |   |   | √ |   |   |   |
| Низкое напряжение |   |   |   |   | √ |   |   |   |
| Короткое замыкание |   |   |   |   | √ |   |   |   |
| Асимметрия между фазами |   |   |   |   | √ |   |   |   |
| Неправильная последовательность фаз |   |   |   |   | √ |   |   |   |
| Перегрузка |   |   |   |   | √ |   |   |   |
| Счетчик общего числа часов работы |   |   |   |   |   | √ |   |   |
| Частичный счетчик числа часов работы |   |   |   |   |   | √ |   |   |
| Киловаттметр |   |   |   |   |   | √ |   |   |
| Счетчик успешных пусков |   |   |   |   |   | √ |   |   |
| Счетчик отказов при пуске |   |   |   |   |   | √ |   |   |
| Счетчик обслуживание |   |   |   |   |   | √ |   |   |
| RS232 |   |   |   |   |   |   | √ |   |
| RS485  |   |   |   |   |   |   | √ |   |
| Modbus IP  |   |   |   |   |   |   | √ |   |
| Modbus |   |   |   |   |   |   | √ |   |
| SNMP hardware LAN module |   |   |   |   |   |   | √ |   |
| ПО для ПК |   |   |   |   |   |   | √ |   |
| Аналоговый модем |   |   |   |   |   |   | √ |   |
| История аварийных сигналов |   |   |   |   |   |   |   | √ |
| Запуск внешней командой |   |   |   |   |   |   |   | √ |
| Блокировка запуска |   |   |   |   |   |   |   | √ |
| Запуск при сбое в сети |   |   |   |   |   |   |   | √ |
| Управление предварительным подогревом двигателя |   |   |   |   |   |   |   | √ |
| Активация контактора установки |   |   |   |   |   |   |   | √ |
| Активация контактора сети и установки |   |   |   |   |   |   |   | √ |
| Контроль температуры двигателя |   |   |   |   |   |   |   | √ |
| Программируемые аварийные сигналы |   |   |   |   |   |   |   | √ |
| Функция запуска установки в режиме испытаний |   |   |   |   |   |   |   | √ |
| Программируемые выходы |   |   |   |   |   |   |   | √ |

**CONTROLLER SPECIFICATIONS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Descriptions of technical requirements for GenSet controller | Generator readings | Power line readings | Engine readings | Engine protection | Generator set protection | Counters | Network | Functions |
| Voltage between phases | √ | √ |   |   |   |   |   |   |
| Voltage between neutral and phase | √ | √ |   |   |   |   |   |   |
| Current intensities | √ | √ |   |   |   |   |   |   |
| Frequency | √ | √ |   |   |   |   |   |   |
| Apparent power (Kva) | √ | √ |   |   |   |   |   |   |
| Active power (kW) | √ | √ |   |   |   |   |   |   |
| Reactive power (kW) | √ | √ |   |   |   |   |   |   |
| Power factor | √ | √ | √ |   |   |   |   |   |
| Coolant temperature |   |   | √ |   |   |   |   |   |
| Oil pressure |   |   | √ |   |   |   |   |   |
| Fuel level (%) |   |   | √ |   |   |   |   |   |
| Battery voltage |   |   | √ |   |   |   |   |   |
| R.P.M. |   |   | √ |   |   |   |   |   |
| Battery charge alternator voltage |   |   | √ |   |   |   |   |   |
| High water temperature |   |   |   | √ |   |   |   |   |
| High water temperature on the sensor |   |   |   | √ |   |   |   |   |
| Low water temperature on the sensor |   |   |   | √ |   |   |   |   |
| Low oil pressure |   |   |   | √ |   |   |   |   |
| Low oil pressure on the sensor |   |   |   | √ |   |   |   |   |
| Low water level protection |   |   |   | √ |   |   |   |   |
| Unexpected shutdown protection |   |   |   | √ |   |   |   |   |
| Fuel tank by sensor protection |   |   |   | √ |   |   |   |   |
| Stop failure protection |   |   |   | √ |   |   |   |   |
| Battery voltage failure protection |   |   |   | √ |   |   |   |   |
| Battery charge alternator failure |   |   |   | √ |   |   |   |   |
| Overspeed protection |   |   |   | √ |   |   |   |   |
| Underspeed protection |   |   |   | √ |   |   |   |   |
| Start failure protection |   |   |   | √ |   |   |   |   |
| Emergency Stop protection |   |   |   | √ |   |   |   |   |
| High frequency protection |   |   |   |   | √ |   |   |   |
| Low frequency protection |   |   |   |   | √ |   |   |   |
| High voltage protection |   |   |   |   | √ |   |   |   |
| Low voltage protection |   |   |   |   | √ |   |   |   |
| Short circuit protection |   |   |   |   | √ |   |   |   |
| Asymmetry between phases protection |   |   |   |   | √ |   |   |   |
| Incorrect phase sequence protection |   |   |   |   | √ |   |   |   |
| Overload protection |   |   |   |   | √ |   |   |   |
| Total operating hours counter |   |   |   |   |   | √ |   |   |
| Partial operating hours counter |   |   |   |   |   | √ |   |   |
| Kilowatt meter |   |   |   |   |   | √ |   |   |
| Counter of successful launches |   |   |   |   |   | √ |   |   |
| Start Failure Counter |   |   |   |   |   | √ |   |   |
| Counter maintenance |   |   |   |   |   | √ |   |   |
| RS232 |   |   |   |   |   |   | √ |   |
| RS485 |   |   |   |   |   |   | √ |   |
| Modbus IP |   |   |   |   |   |   | √ |   |
| Modbus |   |   |   |   |   |   | √ |   |
| SNMP hardware LAN module |   |   |   |   |   |   | √ |   |
| PC software |   |   |   |   |   |   | √ |   |
| Analog modem |   |   |   |   |   |   | √ |   |
| Alarm history |   |   |   |   |   |   |   | √ |
| Run by an external command |   |   |   |   |   |   |   | √ |
| Startup lock |   |   |   |   |   |   |   | √ |
| Startup on Network Failure |   |   |   |   |   |   |   | √ |
| Engine preheating control |   |   |   |   |   |   |   | √ |
| Installation contactor activation |   |   |   |   |   |   |   | √ |
| Mains contactor activation and installation |   |   |   |   |   |   |   | √ |
| Engine temperature monitoring |   |   |   |   |   |   |   | √ |
| Programmable alarms |   |   |   |   |   |   |   | √ |
| The function of starting the installation in test mode |   |   |   |   |   |   |   | √ |
| Programmable outputs |   |   |   |   |   |   |   | √ |

**Technical conditions**

**Uninterruptible power supply system equipment (UPS) (Lot 4)**

|  |  |
| --- | --- |
| **Russian** **Оборудование системы бесперебойного электроснабжения для дата центра Агарак** | **English** **Uninterruptible power supply system equipment for Agarak data center** |
| Требования к функциональным, техническим, эксплуатационным характеристикам товара1. Разработка проекта и миграции электропитания дата центра Агарак.
2. Колличество в блоков мощности каждом UPS должно быть не мение 4 шт. Для обеспечения бесперебойного питания с резервированием N+1 при нагрузке 100ква
3. В каждом UPS должно быть 2 CPU с возможностю горячей замены
4. UPS должен иметь возможность калибровки по времени нахождения в батарейном режиме
5. UPS должен иметь возможность определять не исправные батарейные модули и сообшать системе мониторинга по сети IP/SNMP
6. Батарейные модули должны иметь возможность поштучной горячей замены.
7. Посатвка свежих Li-Ion батарей должно быть осуществлена после завершения всех монтажных работ UPS платформы. Время начала поставок определяется вендором.
8. UPS платформа должна быть оснащена соответствующей системой расспределения питания для обеспечения двустороннего питания в каждом информационном шкафу дата центра Агарак
9. Удлинителные кабели, необходомого сечения и вся электро-монтажная арматура расспределительной сети информационых шкафов дата центра (PDU) должна быть включена в представленую спецефикацию:
10. PDU шкафов расспределительного питания должны обеспечивать возможность дистанционного мониторинга и контроля посредством протоколов IP/SNMP
11. Modular Precision Power Distribution Cabinet должен быть в колличестве 2 шт.и содержать следующие аксесуары:
* Input module, supports dual 250 A MDU inputs (no breaker on the module), 10 U high -1pcs
* Output module, busbar rated current 250 A, supports a maximum of 2 x 12P 40 A branch breakeres (no breaker on the module), 10 U high – 1pcs
* Output module, busbar rated current 250 A, supports a maximum of 2 x 24P 40 A branch breakeres (no breaker on the module), 10 U high - 1pcs
* Thermomagnetism Tripping Device - 2pcs
* Air-break Switch Subassembly - 20 pcs
* 160A/250A/400A N Busbar -1pcs
* Cascading cable for PDC internal subracks- mandatory when the number of output subracks in a PDC is greater than1 -2 pcs
* The fault tripping alarm components - 2pcs
* Modular Precision PDC Cabinet dimensions: 600mm(W)\*1200mm(D)\*2000mm(H),Maximum Support for 630A Input Module – 1pcs
* Intelligent power monitoring unit,220VAC auxiliary power supply - 4pcs
1. Все типы монтажных и пусконаладочных работ всей новой системы UPS платформы должны быть включены в спецификацию
2. Компания производитель предлогаемого железа UPS, PDU и других необходимых устройств должны обеспечить интеграцию всех новых установленных узлов в существующем в компании заказчика ПО Data Center Expert путем обеспечения необходимых ddf файлов (библиотек) для подключения к ПО заказчика. Библиотеки (ddf файлы для ПО Data Center Expert)должны быть включены в спецефикацию.ddf файлы для ПО Data Center Expert устанавливаются заказчиком.
3. Спецефикация должна учитывать все работы, необходимые материалы по кабелизации как силовой так и информационной с необходимым сопровождением соответсвующей маркировки на кабелях по стандартaм СКС ANSI/TIA/EIA 942.
4. В спецификация должна содержать обучение и сертефикацию двух инженеров из компании заказчика для дальнейшей эксплуатации UPS платформы.

**Наименование требуемого товара и колличества**Источник бесперебойного питания мощностью 100 кВт/100кВАв комплекте с аккумуляторными батареями – по одному комплекту1. Оборудование системы бесперебойного электроснабжения для дата центра Агарак в количестве двух комплектов, со временем автономной работы не менее 20 минут каждый при нагрузке 100 кВт.
2. Состав одного комплекта:
	1. Модульный источник бесперебойного питания выходной мощностью 100кВт/100кВА, включая силовые модули 50кВт/50кВА в количестве 4 шт.

ИБП должен обладать модульной конструкцией: силовые модули, модуль байпаса, модуль контроля и управления поддерживают горячую замену.1. Источник бесперебойного питания должен иметь в комплекте 18шт. 3-х фазных PDU с мощностью каждого 11квт с раземами 24\*С13+6\*С19 а так же с измерительными приборами и диспеем поддерживающие дистанционный мониторинг IP/SNMP

*Входные параметры:** Подключение ввода: 3Ph+N+PE
* Номинальное напряжение: 380/400/415В AC
* Диапазон напряжения: 138-485В AC (305-485В AC при нагрузке 100%; 138-305В AC при нагрузке 40%-100%)
* Диапазон частоты: 50±3% Гц
* Коэффициент мощности: 0.99

*Параметры байпаса:** Номинальное напряжение: 380/400/415В AC
* Частота: 50±3 Гц

*Батареи литий-ионные:** Номинальное напряжение группы: 512В DC (количество батарейных модулей должно быть 16 шт. на батарейный шкаф.)

*Выходные параметры:** Подключение вывода: 3Ph+N+PE
* Напряжение: 380/400/415В AC ±1%
* Частота: контроль ввода байпаса (режим Online), 50Гц ±0,05% (режим работы от батарей)
* Форма сигнала: Синусоидальная (THDv<1% для линейной нагрузки)
* Допустимая перегрузка:

- Инвертор: перегрузка 110% - 60 мин.; перегрузка 125% - 10 мин.; перегрузка 150% - 1 мин.- Байпас: перегрузка 135% в течение длительного периода; перегрузка мене 1000% - 100 мс*Параметры системы:** Тип ИБП: on-line
* Коэффициент мощности инвертора: 1
* КПД в номинальном режиме: 96%
* Ввод кабеля: сверху

*Параметры окружающей среды:** Рабочая температура: 0-40ºC
* Температура хранения: -40-70ºC
* Относительная влажность: 0%-95% (без конденсации)
* Высота: 1000 м. Свыше 1000 м, снижение мощности на 1% каждые 100 м
* Уровень шума: <75 дБ

*Прочие требования:** В×Ш×Г (мм): не более 2000×1200×850
* Масса (кг): не более 800
* Сертификация: EN/IEC 62040-1; EN/IEC 62040-2; EN/IEC 62040-3; CE; CB; RoHS, REACH, WEEE, EAC.
* Интерфейс связи: Сухие контакты, RS485, IP SNMP
	1. Должно быть два батарейный шкафа с литий-ионными модулями в количестве 16 шт. в каждом
* Номинальное напряжение батарейного шкафа: не менее 512В
* Номинальное напряжение батарейного: не менее 64В
* Общая ёмкость батарейного шкафа: не менее 80Ач (две группы по 40Ач)
* Заявленное количество циклов разряда-заряда при 50% разрядах: не менее 5000
* Материал изготовления литий-ионных ячеек: LiFePO4 (LFP)
* Срок службы литий-ионных АКБ, не менее: 15 лет
* Наличие автоматического выключателя защиты
* Вес батарейного шкафа: не более 800 кг

Размеры батарейного шкафа: не более (ШхГхВ): 600х850х2000мм**Какая должна быть функциональность ИБП и АКБ*** Топология ИБП – двойное преобразование
* Возможность параллельной работы ИБП
* Цветной сенсорный ЖК дисплей с диагональю 7 дюймов, с портами RS485, Fast Ethernet (FE) и USB для ИБП и шкафа с АКБ
* Наличие у ИБП рубильников: ручной байпас
* Наличие у ИБП и шкафа с АКБ «Сухих контактов», портов RS485 и IP SNMP
* Наличие у шкафа с АКБ защиты от превышения температуры, превышения номинального тока, перезарядки или глубокой разрядки АКБ
* Наличие у модулей с АКБ встроенного поэлементного мониторинга с контролем температуры и напряжения каждой ячейки АКБ
 | Requirements for functional, technical, performance characteristics of items1. Development of the project and migration of power supply of the Agarak data center.
2. The number of power units in each UPS should be at least 2 pcs. To provide uninterruptible power supply with N + 1 redundancy at 100kVA load
3. Each UPS must have 2 hot-swappable CPUs
4. The UPS must be able to calibrate the time in battery mode.
5. The UPS shall provide remote monitoring and control capability through IP / SNMP protocols.
6. Battery modules must be hot-swappable per piece.
7. Delivery of fresh Li-Ion batteries should be delivered after completion of all installation work on the UPS platform. The start time of deliveries is determined by the vendor.
8. The UPS platform must be equipped with an appropriate power distribution system to provide bi-directional power to each information cabinet of the Agarak data center.
9. Extension cables of the required cross-section and all electrical and installation fittings of the distribution network of data center information cabinets (PDU) must be included in the submitted at specification:
10. PDUs of power distribution cabinets shall provide remote monitoring and control capabilities via IP / SNMP protocols.
11. Modular Precision Power Distribution Cabinet must be 2 pieces and contain the following accessories:
* Input module, supports dual 250 A MDU inputs (no breaker on the module), 10 U high -1pcs
* Output module, busbar rated current 250 A, supports a maximum of 2 x 12P 40 A branch breakeres (no breaker on the module), 10 U high – 1pcs
* Output module, busbar rated current 250 A, supports a maximum of 2 x 24P 40 A branch breakeres (no breaker on the module), 10 U high - 1pcs
* Thermomagnetism Tripping Device - 2pcs
* Air-break Switch Subassembly - 20 pcs
* 160A/250A/400A N Busbar -1pcs
* Cascading cable for PDC internal subracks- mandatory when the number of output subracks in a PDC is greater than1 -2 pcs
* The fault tripping alarm components - 2pcs
* Modular Precision PDC Cabinet dimensions: 600mm(W)\*1200mm(D)\*2000mm(H),Maximum Support for 630A Input Module – 1pcs
* Intelligent power monitoring unit,220VAC auxiliary power supply - 4pcs

 12. All types of installation and commissioning of the entire new UPS system platform must be included in the specification. 13. The manufacturer of the offered hardware UPS, PDU and other necessary devices must ensure the integration of all newly installed nodes into the existing Data Center Expert software in the customer's company by providing the necessary ddf files (libraries) to connect to the customer software. Libraries (ddf files for Data Center Expert software) must be included in the specification. Ddf files for Data Center Expert software are installed by the customer. 14. The specification should take into account all the work, the necessary materials for cabling, both power and data, with the necessary maintenance of the appropriate labeling on the cables according to the SCS ANSI / TIA / EIA 942 standards. 15. The specification must contain training and certification of two engineers from the customer's company for the further operation of the UPS platform.**Name of the required product and quantity**Uninterruptible power supply 100 kW / 100 kVA complete with rechargeable batteries - one set1. Equipment of the uninterruptible power supply system for the Agarak data center in the amount of two sets, with an autonomous operation time of at least 20 minutes each at a load of 100 kW.2. Composition of one set:1.1 Modular uninterruptible power supply with output power 100kW / 100kVA, including power modules 50kW / 50kVA in the amount of 4 pcs.The UPS must have a modular design: the power modules, bypass module, monitoring and control module are hot-swappable.1. The uninterruptible power supply must have 18 pcs. 3-phase PDUs with a power of 11 kW each with 24 \* C13 + 6 \* C19 connectors as well as measuring instruments and display supporting remote monitoring IP / SNMP

*Input parameters:*• Input connection: 3Ph + N + PE• Rated voltage: 380/400 / 415V AC• Voltage range: 138-485VAC (305-485VAC at 100% load; 138-305VAC at 40% -100% load)• Frequency range: 50 ± 3% Hz• Power factor: 0.99*Bypass parameters:*• Rated voltage: 380/400 / 415V AC• Frequency: 50 ± 3 Hz*Lithium-ion batteries:*• Nominal group voltage: 512V DC (the number of battery modules must be 16 pcs. Per battery cabinet.)*Output parameters:*• Output connection: 3Ph + N + PE• Voltage: 380/400 / 415V AC ± 1%• Frequency: Bypass input supervision (Online mode), 50Hz ± 0.05% (Battery mode)• Waveform: Sinusoidal (THDv <1% for linear load)• Permissible overload:- Inverter: overload 110% - 60 min .; overload 125% - 10 minutes; overload 150% - 1 min.- Bypass: 135% overload for a long period; overload less than 1000% - 100 ms*System parameters:*• UPS type: on-line• Power factor of the inverter: 1• efficiency in nominal mode: 96%• Cable entry: top*Environment parameters:*• Working temperature: 0-40ºC• Storage temperature: -40-70ºC• Relative humidity: 0% -95% (non-condensing)• Altitude: 1000 m. Above 1000 m, power reduction by 1% every 100 m• Noise level: <75 dB*Other requirements:*• H × W × D (mm): no more than 2000 × 1200 × 850• Weight (kg): no more than 800• Certification: EN / IEC 62040-1; EN / IEC 62040-2; EN / IEC 62040-3; CE; CB; RoHS, REACH, WEEE, EAC.• Communication interface: Dry contacts, RS485, IP SNMP1.2 There should be two battery cabinets with 16 lithium-ion modules. in every• Rated voltage of the battery cabinet: not less than 512V• Nominal voltage of battery: not less than 64V• Total capacity of the battery cabinet: at least 80Ah (two groups of 40Ah each)• Declared number of discharge-charge cycles at 50% discharges: not less than 5000• Material of manufacture of lithium-ion cells: LiFePO4 (LFP)• Service life of lithium-ion batteries, not less: 15 years• Availability of automatic protection switch• Battery cabinet weight: no more than 800 kgBattery cabinet dimensions: no more (WxDxH): 600x850x2000mm**What should be the functionality of the UPS and battery**• UPS topology - double conversion• Possibility of parallel operation of the UPS• 7-inch color LCD touch screen display with RS485, Fast Ethernet (FE) and USB ports for UPS and battery cabinet• The UPS has circuit breakers: manual bypass• Availability of the UPS and the cabinet with battery "Dry contacts", RS485 and IP SNMP ports• The cabinet with the battery has protection against over-temperature, over-rated current, overcharging or deep discharge of the battery• Availability of modules with batteries built-in element-wise monitoring with temperature and voltage control of each battery cell |

**appendix 1**

**Price quotation**

**Date of this Quotation submission**: *[insert date of* Quotation *submission]*

**RFQ No.:** TS-AG-22-1

To: **Ucom CJSC**

1. **Conformity:** We offer to supply in conformity with the bidding document and in accordance with the Delivery Schedules specified in the RFQ the following Goods: [*insert a brief description of the Goods and Related Services*];
2. **Price**: The total price of our Quotation, excluding any discounts offered in item (f) below is:

Option 1, in case of one lot: Total price is: [*insert the total price of the Quotation in words and figures, indicating the various amounts and the respective currencies*];

Or

Option 2, in case of multiple lots: (a) Total price of each lot [*insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies*]; and (b) Total price of all lots (sum of all lots) [*insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies*];

1. **Discounts**: The discounts offered and the methodology for their application are:

(i) The discounts offered are: [*Specify in detail each discount offered.*]

(ii) The exact method of calculations to determine the net price after application of discounts is shown below: [*Specify in detail the method that shall be used to apply the discounts*];

1. **Validity**: Our Proposal shall be valid 120 days*,* and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
2. **Purchaser Not Bound to Accept**: We understand that you are not bound to accept the lowest evaluated cost Quotation, the Most Advantageous Quotation or any other Quotation that you may receive; and

**Name of the Bidder**: \*[*insert complete name of the Bidder*]

**Name of the person duly authorized to sign the Quotation on behalf of the Bidder**: \*[*insert complete name of person duly authorized to sign the* Quotation]

**Title of the person signing the Quotation**: [*insert complete title of the person signing the* Quotation]

**Signature of the person named above**: [*insert signature of person whose name and capacity are shown above*]

**Date signed** [*insert date of signing*] **day of** [*insert month*], [*insert year*]

\*: Person signing the Quotation shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Price Quotation.

*Appendix 2*

Manufacturer’s Authorization

Date: *[insert date (as day, month and year) of Quotation submission]*

RFB No.: *TS-AG-22-1*

To: ***Ucom CJSC***

WHEREAS

We *[insert complete name of Manufacturer],* who are official manufacturers of*[insert type of goods manufactured],* having factories at [insert full address of Manufacturer’s factories], do hereby authorize *[insert complete name of Bidder]* to submit a Quotation the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods],* and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Dated on \_\_\_\_\_\_\_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_ *[insert date of signing]*