

Annexure II

REPLY TO THE PRE-BID QUERIES

**(Tender for Supply,Installation,Training & Maintenance of Survey Equipment at Cochin International Airport)
Tender No: CIAL/OPS/TENDER/2023/3**

Sl No.	Page No.	Section Name	Tender Conditions	Query	Reply to Query
1	18	Technical Specification for GNSS Base Receiver	Satellite tracking GPS--L1(C/A), L2, L5, L2C, unencrypted P code signals, Glonass--L1, L2 & L3carrier, L1C/A, L2C/A, L2P, Galileo--E1, E5a, E5b, E6 and Altboc, BeiDou--B1, B2, B3, B1C, B2A, QZSS—L1, L2C, L5, L6 (LEX), NavIC—L5, S-bands signals. Receiver should support SBAS: WAAS, EGNOS, GAGAN, MSAS. Also receiver should be up gradable to the next level of GNSS modernization and testing of future global and regional navigation systems.Capable of tracking user selectable GNSS and SBAS signals.	Please Clarify regarding the Upgradation to the next level of GNSS modernization	Since the frequencies of all the signals of GPS, GLONAS, Galileo, BeiDou, QZSS, SBAS satellites etc are defined, If at all any signals are assigned within the existing frequency bandwidth have to be upgraded .

2	19	Remote Configuration	GNSS system should be able to be configured remotely.Should be able to monitor from remote location/base station with controller or any PC with requiredsoftware and also should be able to work on stand alone	Kindly clarify “Should be able to monitor from remote location/base station with controller or any PC with required software and also should be able to work on stand alone.”	The Specification can be discarded as it is not suited to our requirement
3	19	Communication	<p>It should be capable of supporting radio modem/ telephone line/GSM modem, 4G modem, RS 232 port, Ethernet (RJ45), external memory devices. The receiver must be able to support data downloading internally from met- package as well as data I/O using VSAT or 4G modem simultaneously. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver.</p> <p>Preferably the system should have internal slot based GSM/ GPRS/4G link for data pooling.</p> <p>The receiver should have onboard USB or memory slot,. Inbuilt USB port, inbuilt WiFi, Web Browser excess to receiver configuration, NTRIP, TCP/IP, Google Earth Support in Web browser configuration.</p>	<p>Is 3.5G or better acceptable. Kindly clarify “ telephone line/GSM modem and Ethernet (RJ45), external memory devices. The receiver must be able to support data downloading internally from met- package as well as data I/O using VSAT or 4G modem simultaneously. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver.</p>	<p>Yes. 3.5G is acceptable. Kindly read it as Radio mode & GSM mode mandatory (3.5G or better) . Should have Data Ports : One RS232 port,One USB Port, Bluetooth, Wi-Fi Integrated with all ports.Rest all are preferable</p>

4	20	Internal batteries	Both the GNSS Receiver as well as controller should be operable with internal batteries long enough to last at least 10 hours of field operation. Two internal batteries must be supplied	Kindly clarify.	Both GNSS receivers should be long enough to last at minimum 10hrs of field operations, the same can be achieved with two batteries also. Irrespective of the same two internal batteries must be supplied for GNSS receivers. Kindly note it is applicable only for GNSS receivers not for data controller.
5	20	Inbuilt Radio	Fully integrated, fully with minimum of 0.5 more coverage sealed internal radio signal transceiver, Watt transmitting power with 3-5 km or better	Is 0.5W internal radio or radio which can transmit to a range of 3-5km needed, kindly clarify.	Please note 0.5W internal radio or better is mentioned in the tender, preferably 1W or more which can transmit to the range of 3-5 Km in tough terrain

6	21 Point no 2	Physical and Environmental specifications: Point No: v	Should withstand 1m or more pole drop onto hard surfaces / concrete surfaces	Kindly clarify	As Per tender
7	23 Point No:vii	Remote Configuration	GNSS System should be able to be configured remotely. Should be able to monitor from remote location/base station with controller or any PC with required software and also should be able to work on stand alone.	Kindly clarify “Should be able to monitor from remote location/base station with controller or any PC with required software and also should be able to work on stand alone.”	The Specification can be discarded as it is not suited to our requirement
8	23, Point No: 2 (ii)	Accuracy: Real Time Kinematic (RTK)	Horizontal 10 mm+ 1 ppm Vertical 20 mm + 1 ppm or better	Shall Base & Rover can have different RTK accuracy levels	As Per Tender.Preferably should have the same accuracy levels for base & rover,as both are interchangeable

9	23 Point no: 4	Power	Both the GNSS Receiver as well as controller should be operable with internal batteries long enough to last at least 10 hours of field operation. Two internal batteries must be supplied	Kindly clarify	Both GNSS receivers should be long enough to last at minimum 10hrs of field operations,the same can be achieved with two batteries also.Irrespective of the same two internal batteries must be supplied for GNSS receivers. Kindly note it is applicable only for GNSS receivers not for data controller.
10	23 Point No: v	Communication	It should be capable of supporting radio modem/ telephone line/GSM modem, 4G modem, RS 232 port, Ethernet (RJ45), external memory devices. The receiver must be able to support data downloading internally	Is 3.5G or better acceptable. Kindly clarify “ telephone line/GSM modem and Ethernet (RJ45), external	Yes. 3.5G is acceptable. Kindly read it as Radio mode & GSM mode mandatory (3.5G or better) . Should have

			<p>from met- package as well as data I/O using VSAT or 4G modem simultaneously. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver. Preferably the system should have internal slot based GSM/ GPRS/4G link for data pooling. The receiver should have onboard USB or memory slot,. Inbuilt USB port, inbuilt WiFi, Web Browser access to receiver configuration, NTRIP, TCP/IP, Google Earth Support in Web browser configuration.</p>	<p>memory devices. The receiver must be able to support data downloading internally from met- package as well as data I/O using VSAT or 4G modem simultaneously. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver.</p>	<p>Data Ports : One RS232 port,One USB Port, Bluetooth, Wi-Fi Integrated with all ports. Rest all are preferable</p>
11	20 Point no iii	Power Port	2 No power port with input voltage of 12V/24V DC external power input with over-voltage /polarity protection	Kindly clarify	The Specification is amended ,kindly note it should have minimum One Power port for Connecting external Power

12	21 Point no vi	Data Storage	6GB Internal memory or better	Is 6GB Mandatory,Kindly Clarify	The Specification is amended ,kindly note it should have an internal memory of minimum 4GB or better
13	21 Point no iii	Physical and Environmental specifications: Point No: v	Humidity	Is 100% Condensing Mandatory	The Specification is amended ,kindly note it should be minimum 95% Condensing
14	21 Point no 4	Display / LEDs in front Panel	Receiver should have key display LEDs in the front panel or handheld display controller which can be connected through RS-232, Bluetooth, Ethernet port or Wi-Fi . Must have a front display screen that should clearly explain power on conditions, internal and external battery status, satellite tracking status, memory status, data logging status, data transmission status (IP address etc.), and should facilitate configuration through press button option provided in the front panel.	Kindly clarify	As Per Tender.The GNSS receivers should have key display LEDs to provide details such as ON/OFF indicators, battery life & other equipment status Or Receiver should have a handheld display controller , when connected to provide the mentioned details

15	22 Point no V	GNSS Measurements	Very Low noise GNSS carrier phase measurements with <1mm precision in a 1HZ bandwidth	Kindly Clarify	Preferably the GNSS measurements shall meet the mentioned standards
16	19 Point no 1,(iii)	GNSS Antenna	Multi frequency, High gain Integrated antenna with Sub-mm phase center repeatability.	Is Multi frequency, High gain Integrated antenna enough, As sub mm phase center repeatability antenna's are mainly being used for Research purpose and more over sub mm phase center are mostly provided with External Antenna and as per the tender the GNSS should be Integrated system.	Kindly read it as Multi frequency, High gain Integrated antenna is mandatory , Preferably with sub-mm phase center repeatability

17	25 Point No: 2	Display	<p>1.6" Capacitive multi-touch (LCD/LED) or better</p> <p>2. 1920 x 1200 pixels resolution</p> <p>4. Glove / rain mode options</p> <p>5. Corning® Gorilla® Glass</p>	Kindly Clarify	<p>1. The display resolution specification is amended. Resolution of 1280 x 800 or better is acceptable.</p> <p>2. Display size of 6" or above is mandatory.</p> <p>3. Preferably should have gloves & wet hand option.</p> <p>4. Corning Gorilla glass is mandatory</p>
18	25 Point No: 4	Processor	<p>Octa Core 2.0GHz or better</p> <p>RAM 4GB or better</p>	Kindly clarify Processor Options for Android & Windows	<p>For Android OS : OctaCore 2.0GHz or better with minimum 4GB RAM.</p> <p>For Windows : As equivalent or better with 4GB RAM</p>

19	25 Point No: 9	Communication	<p>It should be capable of supporting radio modem/ telephone line/GSM modem, 4G modem, RS 232 port, Ethernet (RJ45), external memory devices. The receiver must be able to support data downloading internally from met- package as well as data I/O using VSAT or 4G modem simultaneously. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver. Preferably the system should have internal slot based GSM/ GPRS/4G link for data pooling. The receiver should have onboard USB or memory slot,. Inbuilt USB port, inbuilt WiFi, Web Browser excess to receiver configuration, NTRIP, TCP/IP, Google Earth Support in Web browser configuration.</p>	<p>Kindly clarify “Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver. Data Ports : RS232 port, Ethernet Port, Bluetooth, Wi-Fi Integrated with all ports being IP67 complied on integration with receiver. Preferably the system should have internal slot based GSM/ GPRS/4G link for data pooling. The receiver should have onboard USB or memory slot,. Inbuilt USB port, inbuilt WiFi, Web Browser excess to receiver configuration, NTRIP, TCP/IP, Google Earth Support in Web browser configuration.</p>	<p>GSM Mode with 4G is mandatory for Data Controller. Rest all are preferable Only.</p>
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20	26 Point No:10	Bluetooth	BT V4.1 Upto 150 m or better	Kindly clarify	For Data Controller Up to 60m or better is acceptable.
21	26 Point No: 12	Internal Batteries	Both the GNSS receiver as well as controller should be operable with internal batteries long enough to last at least 10 hours of field operation.Two internal batteries must be supplied	Kindly clarify.	The specification is amended,the data controller battery should last for a minimum of 8hrs of field operation .Preferably additional internal battery can be provided.
22	26 Point No: 13	Inbuilt Radio	Fully integrated, fully with minimum of 0.5 more coverage sealed internal radio signal transceiver, Watt transmitting power with 3-5 km or better	Please note inbuilt radio comes in GNSS receivers and not in Controller. Kindly amend.	The Specification can be discarded as it is not suited to our requirement
23	26 Point No:14	Audio	Rear - facing speaker & Microphones	Whether front - facing speaker & Microphones acceptable	Kindly read it as Rear or front facing speakers & Microphones.Rear or Front are acceptable.

24	27 Point No: 16 (i)	Operating temperature for all major components	- 40°C to + 55°C	Is it mandatory	The specification is amended as -10 °C to 55 °C, which is mandatory
25	27 Point No: 16 (iii)	Humidity	100% Condensing	Please Clarify	The Specification is amended ,kindly note it should be minimum 95% Condensing
26	26 Point No: 11	Camera	Rear: 13 megapixels with autofocus and flash Front: 5 megapixels	Is front Camera Mandatory	The specification is ammended, Rear Camera of 8MP or better is mandatory , front camera is Optional
27	27 Point No:17	External Battery Cable	Suitable External Battery cable should be provided for Base station.	Please clarify	Kindly read it as Suitable External battery Cable should provided for connecting External Power to the data Controller.

28	25 Point No:3	Keyboard	Full Alphanumeric or its virtual keyboard with digits should large sized and should be visible in day light	Can We have Hard QWERTY /ALPHANUMERIC Keyboard.	As Per Tender
29	26 Point no 15	Sensors	<ul style="list-style-type: none"> · Gyroscope · Compass · Accelerometer · Pressure · Proximity · Ambient light 	Whether all sensors are mandatory	As per Tender.Proximity & Pressure Sensors are not mandatory
30	28 Point No:	Co-ordinate System Manager	Should have technology which combines optical, scanning,& GNSS data plus images in the same job	Please Clarify	As per Tender
31	30 Point No:2	Importing Raw Data	Should be able to import Raw data from the GPS/GLONASS receiver as well as RINEX data. Also should be able to import raw data as well as precise ephemeris data via internet IGS data from net.	Please Clarify	Kindly read as Should be able to import Raw data from the GPS/GLONASS/ Galileo/ BeiDou, QZSS receiver as well as RINEX data. Also should be able to importraw data as well as precise ephemeris data via internet IGS data from net.

32	30 Point No:3	Baseline Processing	Should be capable of processing GPS L1 and L2 as well as GLONASS raw data and other navigation system signals for static and RTK. Should be able to process static data of single point for control.	Please Clarify	Kindly read as Should be capable of processing GPS L1 and L2 as well as GLONASS/ Galileo/ BeiDou/ QZSS raw data and other navigation system signals for static and RTK. Should be able to process static data of single point for control.
33	32	Field of View	1° 30" or better	Is it Mandatory	Field of View of 1° 25" or better is acceptable
34	33	Plummet	Inbuilt Laser Plummet	Is Optical Plummet acceptable	The specification is amended as Inbuilt Laser or Optical Plummet
35	33	Display	Display on Both faces, 3.5 inch or better LED/LCD/QVGA (or better) colour graphic screen (or better) and alphanumeric keyboard capable of displaying point, lines or polygons etc. Day light readable, coloured graphic screen with characters, icons and lines visible in high and low ambient temperature, in direct and low sunlight conditions with proper background illumination facility. At least one face should be Coloured sun readable display with touch screen	Is dual side display needed	As per Tender. Preferably dual side identical display. If one display fails, can operate from the other one

36	33	Data storage	2 GB + 8GB or better Not less than 10000 points with USB compatibility	Is “Internal memory of 2GB mandatory	The specification is amended,internal memory of 1GB or better is acceptable ,with a provision of supporting 8GB SD card or USB
37	33	Wireless Communication	Bluetooth, WLAN	Please Clarify	As per Tender.Kindly read it as Bluetooth / WLAN
38	35	Accessories	Total Station with laser plummet and following accessories:	Please Clarify	As Per Tender .Read it as Laser/Optical Plummet.
39	32	Minimum Focusing Range	1.5m or better	Is it mandatory	The specification is amended as 1.3m or better.

