

Laboratory and Measuring and Observing and Testing Equipment; 41											DRAFT	
Measuring and observing and testing instruments; 4111												
Land surveying instruments; 411142												
GNSS RECEIVER FOR CONTINUOUSLY OPERATED REFERENCE STATION (CORS), UNSPC Code: 41114292												
S. No.	Parameter	Field Type	Field Category	LOV							Unit	Comment
<b>RECEIVER FEATURES &amp; FUNCTIONS</b>												
1	Receiver Type	Enumerable	Mandatory	Base								
2	Mode of Processing	Enumerable	GOLDEN	Static & Fast Static	Real Time Kinematic (RTK)						Multi Select	
3	RTK processing (hint: Network RTK Correction - All Commonly available industry standard Network Solution)	Ordinal	GOLDEN	Single Base RTK Correction (1)			Network RTK Correction (2)		NA			
4	Built-in standalone satellite based correction facility (Hint: May select the name of the satellite based correction facility, if available, or Not Available, if Not Applicable)	Enumerable	GOLDEN	L-band	Not Available							
5	Receiver Antenna	Enumerable	Mandatory	External								
6	Antenna Type	Enumerable	GOLDEN	Choke Ring with DM element	Choke Ring		Geodetic					
7	Supported positioning signal bands for the Antenna	Enumerable	Mandatory / Filter	L1, L2, L5, G1, G2, G3, E1, E5ab, E6, B1, B2, B3, Omnistar, Terrastar, Starfire, Atlas, RTX, Veripos								Multi Select
8	Phase centre Accuracy	Enumerable	GOLDEN	Less than 1 mm, Less than 2 mm, NA								
9	Phase centre Repeatability	Enumerable	GOLDEN	Less than 1 mm, Less than 2 mm, NA								
10	Minimum Tracking elevation	Enumerable	Mandatory	0 degree								
11	Minimum independent and concurrent logging sessions	Ordinal	GOLDEN	8 (1); 10 (2); 12 (3); more than 12 (4)								
<b>RECEIVER POSITIONING PERFORMANCE &amp; ACCURACY (RMS)</b>												
1	Differential GPS (DGPS) Accuracy - (Horizontal) (Hint: ppm means 1 mm over a kilometer)	Ordinal	GOLDEN	NA (0), 30 cm + 1 ppm (1), 25 cm + 1 ppm (2),								
2	Differential GPS (DGPS) Accuracy - (Vertical)	Ordinal	GOLDEN	NA (0), 60 cm + 1 ppm (1), 50 cm + 1 ppm (2), 45 cm + 1 ppm (3), 40 cm + 1 ppm (4),								
3	High Precision / Long Observation Static Accuracy - (Horizontal)	Ordinal	GOLDEN	NA (0), 3 mm + 0.5 ppm (1), 3 mm + 0.1 ppm (2),								
4	High Precision / Long Observation Static Accuracy - (Vertical)	Ordinal	GOLDEN	NA (0), 6 mm + 0.5 ppm (1), 3.5 mm + 0.4 ppm (2),								
5	Static and Fast Static Accuracy - (Horizontal)	Ordinal	GOLDEN	NA (0), 10 mm + 1 ppm (1), 8 mm + 1 ppm (2), 5 mm + 1 ppm (3), 5 mm + 0.5 ppm (4), 3 mm + 1 ppm (5), 3 mm + 0.5 ppm (6), 3 mm + 0.1 ppm (7),								
6	Static and Fast Static Accuracy - (Vertical)	Ordinal	GOLDEN	NA (0), 15 mm + 1 ppm (1), 10 mm + 0.5 ppm (2), 5 mm + 0.5 ppm (3), 3.5 mm + 0.4 ppm (4), 2.5 mm + 1 ppm (5), 2.5 mm + 0.5 ppm (6),								

7	Real-Time Kinematic (RTK) Accuracy - (Horizontal)	Ordinal	GOLDEN	NA (0), 10 mm + 1 ppm (1), 10 mm + 0.5 ppm (2), 8 mm + 1 ppm (3), 8 mm + 0.5 ppm (4), 6 mm + 0.5 ppm (5), 5 mm + 0.5 ppm (6),								
8	Real-Time Kinematic (RTK) Accuracy - (Vertical)	Ordinal	GOLDEN	NA(0), 20 mm + 1 ppm (1), 15 mm + 1 ppm (2), 15 mm + 0.5 ppm (3), 10 mm + 1 ppm (4), 10 mm + 0.8 ppm (5),								
9	Accuracy via standalone satellite based correction, if available (95%) - (Horizontal)	Ordinal	GOLDEN	NA (0), 20 cm (1), 5 cm (2),								
10	Accuracy via standalone satellite based correction, if available (95%) - (Vertical)	Ordinal	GOLDEN	NA (0), 20 cm (1) , 10 cm (2),								
<b>RECEIVER TRACKING CAPABILITIES</b>												
1	Base Line Processing Range (Static) (May indicate '0' if Not Applicable)	Measurable	GOLDEN	0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000							km	Higher is Better
2	Number of Channels (May indicate '0' if Not Applicable)	Ordinal	GOLDEN	400 to 500 (1); 501 to 700 (2)								
3	Initialisation Time	Measurable	Mandatory	Range : 1 to 180							second	Lower is Better
4	Maximum Position Update Rate (Hz)	Ordinal	GOLDEN	10 (1), 20 (2), 25 (3), 50 (4), 100 and above (5)								
5	Tilt Sensor input	Boolean	GOLDEN	Yes	No							
6	Position Acquisition Method	Enumerable	Mandatory / Filter	Float to Fix	Fix						Multi Select	
<b>GNSS TRACKING SIGNALS</b>												
1	Receiver Tracking Signals (Hint: Select applicable Signals only)	Enumerable	Mandatory / Filter	GPS - L1; GPS - L1 C/A; GPS - L2; GPS - L2C; GPS - L2 P; GPS - L5; GLONASS - L1; GLONASS - L2; GLONASS - L2 C/A; GLONASS - L2 P; GLONASS - L3; NAVIC - L5; NAVIC - upgradable to S Band; Galileo - E1; Galileo - E5 a; Galileo E5 b; Galileo - E5 ab; Galileo - E6; BeiDou - B1; BeiDou - B2; BeiDou - B3; QZSS - L1; QZSS - L2; QZSS - L5; Omnistar, Terrastar, Starfire, Atlas, RTX, Veripos								Multi Select
2	SBAS Support	Enumerable	Mandatory / Filter	GAGAN	WAAS	EGNOS	MSAS	NA			Multi Select	
<b>SUBSCRIPTION LICENSE FOR SATELLITE BASED CORRECTION</b>												
1	Subscription license for satellite based correction, inclusive in the scope of supply	Enumerable	GOLDEN	Yes	NA							
2	If Yes, Validity of License period	Measurable	GOLDEN	0, 1, 2, 3, 4, 5, 6, 7, 8								Years

POST PROCESSING SOFTWARE / ON-BOARD SOFTWARE FEATURES												
1	Post Processing Software with free updates upto Warranty period inclusive in the scope of supply	Enumerable	GOLDEN	Yes	NA							
2	On-Board Software Features	Enumerable	GOLDEN	support the configurable input, output and logging of Met/Tilt measurements; Web Interface for full control; Configuration and access management of receiver, Support remote configuration; Data retrieval and firmware upgrading; Configurable email alert functionality; Secure Access via HTTPS, SSL Certificates; support IP filtering, restricting IP packet access to and from the receiver for enhanced access control security; Support FTP downloads as well as the FTP Push command; Capable of pushing logged and converted data files to three separate FTP servers; NTRIP Caster, NTRIP Client and NTRIP Server functionality;						Multi Select		
COMMUNICATIONS												
1	Communication Ports	Enumerable	Mandatory / Filter	USB; Mini USB; RS 232; Bluetooth; Combined LEMO; Wi-Fi / WLAN; RJ45						Multi Select		
2	Communication Protocols	Enumerable	Mandatory / Filter	NMEA, RINEX, RTCM 2.0, RTCM 3.0, CMR, CMR+, BINEX						Multi Select		
3	Phone Modem Antenna	Enumerable	Mandatory / Filter	Internal Antenna	External Antenna	NA						
4	Radio Modem Antenna	Enumerable	Mandatory / Filter	Internal Antenna	External Antenna	NA						
5	Built-in Data Links - Phone & Radio Modems	Enumerable	Mandatory / Filter	GSM, GPRS, LTE, UMTS, HSDPA, UHF, NA						Multi Select		
6	External Data Links Supported	Enumerable	Mandatory / Filter	GSM, GPRS, LTE, UMTS, HSDPA, UHF, ADSL						multi Select		
RAM / STORAGE												
1	Data Storage Medium	Enumerable	Golden	Internal / Removable	External / Memory Stick						Multi Select	
2	Internal / Removable Storage Capacity	Ordinal	Golden	NA for External Storage (0), 4 GB (1), 8 GB (2), 16 GB (3), 24 GB (4),								
3	External Storage / Memory Stick Slot	Enumerable	Mandatory / Filter	SD	Mini SD	Micro SD	SDHC	NA			multi Select	
4	External Storage / Memory Stick Capacity supplied with Receiver - inclusive in the scope of supply	Measurable	Mandatory / Filter	0	16	32				GB	Higher is Better	
BATTERY												
1	Power Source	Enumerable	Mandatory / Filter	Internal / Removable- Rechargeable Battery			External - Rechargeable Battery				Multi Select	
2	Chemistry of Battery	Enumerable	GOLDEN	Li-ion	Ni-MH	Lead-Acid	SMF				Multi Select	
3	Capacity of Battery (Ah)	Numeric	Mandatory / Filter	Range: 3.6 to 100								
4	Battery Back Up Time	Measurable	GOLDEN	Range: 10 to 72						hours	Higher is Better	
5	Number of Batteries required for operation	Numeric	Mandatory / Filter	1	2							
6	Number of Batteries Supplied	Numeric	Mandatory / Filter	1, 2, 3, 4								

OTHER FEATURES & FUNCTIONS OF THE RECEIVER													
1	Other Features & Functions	Measurable	GOLDEN	Base Station serves multiple Rovers; Base Station Compatible to Base / Rovers of other makes; Interchangeable / Configurable as Base or Rover; Provision to Indicate the Connectivity with Base Station; Multi-path Mitigation for Receiver and Antenna; Compatible to Electronic Total Station (ETS) of Other Makes; All Control functions available with Receiver; Automatic restart Functionality after loss of power in the same configuration; Supports 12 V External Battery; Supporting both AC and DC operation (with a minimum input power range of 10-28 VDC); Hot - Swappable b/w External and Internal Power Sources without affecting Data Recording								Multi Select	
GENERIC													
1	Radio Power	Measurable	GOLDEN	Range : 0 to 35							Watt	AKBNV	
2	Weight of Receiver (including Battery)	Measurable	Mandatory								Kg	AKBNV	
3	Size of Receiver (length x width x depth) (mm X mm X mm)	Text	Mandatory									AKBNV	
ENVIRONMENTAL PARAMETERS													
1	Minimum Operating Temperature	Measurable	Madatory / Filter	-10	-20	-30	-40					deg. C	
2	Maximum Operating Temperature	Measurable	Madatory / Filter	60	65							deg. C	
3	Non Condensing Humidity, Rh	Enumerable	Mandatory	100							%		
4	Ingress Protection	Ordinal	GOLDEN	IP 66 (1); IP 67(2), IP 68(3)									
5	Operational Altitude	Enumerable	Madatory / Filter	Upto 10000							meters		
ACCESSORIES													
1	Accessories - inclusive in the scope of supply	Enumerable	GOLDEN	USB Data Transfer Cable; Connectors and Cables for Connecting to Car Batteries; Suitable Battery Charger to rechargeable batteries from AC Mains; 12 V Vehicle Charging Kit; Light Weight carrycase;								Multi Select	
2	Length of suitable connecting Cable for Antenna (meters) - inclusive in the scope of supply	Ordinal	GOLDEN	30 (1)	50 (2)							meters	
STC													
1	STC of the product read, understood and agreed	Enumerable	Mandatory	Yes									
WARRANTY / TRAINING													
1	On-site Warranty	Measurable	GOLDEN	1, 2, 3							Years	Higher is Better	
2	Training Period - Provided at at Buyer's Premises	Measurable	GOLDEN	0	3	5	7					Days	Higher is Better

**TEST REPORTS**

1	Compliance to Dust test	Enumerable	Madatory / Filter	MIL-STD-810 F, MILSTD-810 G, IS/IEC-60529; NA								
2	Compliance to Water Intrusion test	Enumerable	Madatory / Filter	MIL-STD-810 F, MILSTD-810 G, IS/IEC-60529; NA								
3	Compliance to Vibration test	Enumerable	Madatory / Filter	MIL-STD-810 F, MILSTD-810 G; IS 900-Part 8: NA								
4	Availability of Test Reports from Central Govt / NABL approved / ILAC accredited Lab to prove conformity to the specification	Boolean	<b>GOLDEN</b>	Yes	No							
5	If Yes, Test Report to be furnished to the Buyer on demand	Enumerable	Mandatory	Yes	NA							
6	Test Report No. and Date (May indicate 'NA' if not applicable)	Text	Mandatory									AKBNV
7	Name of the Lab and Address (May indicate 'NA' if not applicable)	Text	Mandatory									AKBNV

**AKBNV: Allow Key But Not Value**

**PREPARED  
TA-JITENDER**

**CHECKED  
AD-GRK**

**Moderator  
DCEO-SKJ**

**Approvers  
ACEO-HRS / ACEO-PS**

## **STC for GNSS Receiver for CORS**

In addition to General Terms and Conditions of the GeM, the following Special T&C shall be applicable for “GNSS Receiver for Continuously Operated Reference Station (CORS)”:

### **A. SELER’S RESPONSIBILITIES:**

The Scope of installation and Commissioning for GNSS Receiver for CORS, shall be as under:

#### **Inclusive in the Scope of Installation & Commissioning:**

- i. Fixing the GNSS Receiver for CORS / Base Station and antenna on already built Platform / Pillar / Monument provided by the consignee.
- ii. Laying & Installation of suitable Antenna cable as applicable.
- iii. Supply, Laying & Installation of suitable Electrical Cable upto 30 meters length, if required, between the Base Station and Power Socket.
- iv. All necessary accessories for laying & installation of Antenna Cabling and Electrical cabling.
- v. Installation, Commissioning & Demonstration of the Base station to the satisfaction of the buyer / consignee.
- vi. Providing Training to the buyer’s representatives after successful installation & Commissioning of the equipment, if applicable.

### **B. CONSIGNEE / USER’S RESPONSIBILITIES:**

- i. Providing built-up Platform / Pillar / Monument for installation & commissioning of the Base Station.
- ii. Civil work for Foundation of Platform / Pillar / Monument and Electrical earthing, wherever required.
- iii. Providing AC Mains power supply and providing Inverter / Generator, if backup is required.
- iv. Providing Server / Desktop Computer / Laptop as per the end user’s requirement.
- v. Necessary approvals from regulatory authorities, if any, for installation of the Base Station.