

Technical Specification of Radar Based Structural Scanner

Radar based system along with Data Acquisition System, Field rugged data display, Computing & storage system, Data Acquisition and processing software, shielded antenna, and Rugged carrying cases for Antennae and other accessories as per details bellow:

| Sl. No. | Item No. | Specifications |
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| 1 | Data Acquisition system/Control Unit | <ul style="list-style-type: none"> a) Control System with in-built rugged color LED display, screen size minimum 10” or attach Laptop, Functional Keypad built-in, Ethernet port, USB / mini USB port, internal battery. It should have suitable ports for connecting with laptop or computer through wired or wireless communications. Direct 2D & 3D mode, with data display in the field, 32GB or more internal data storage. b) The controller should have compatibility with high frequency and low frequency antennae. c) It should have real time & in-built data acquisition with single channel d) Capability of data acquisition: Line and grid mode e) It should be GPS compatible f) The unit should have mode of operation with survey wheel. Also it should be able to run the Time mode and Distance mode acquisition. g) Power requirement: External DC power and rechargeable battery having backup of at least 4 hrs. h) Real Time Filters during data acquisition: IIR, FIR, Migration, Background Removal. i) Should be suitable for Indian working temperature (-10 to +40°C or higher) & humidity and comply all environmental norms and applicable FCC Rules. (should be IP 64 compatible or better). j) It should also comply the following specifications. <ul style="list-style-type: none"> i) Scan/Sec – 300 or better ii) Samples/Scan – 15,000 or better iii) Data Format – 32 bit |
| 2 | Antenna Specifications | Shielded analog or digital rugged single frequency antennae with their electronics, communication cable & accessories and necessary encoder. Each shielded antennae quoted should be single antenna with its central |

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| | | <p>frequency in between the given range below, with facility of acquiring data in point mode, distance mode along with time mode, (IP 64 compatible or better). Cable length with each antenna is minimum 5m.</p> <p>Only single frequency antennae are to be supplied</p> <p>a) Antenna along with compact 3/4-wheel survey cart with encoder for distance mode data collection having center frequency between 300 to 400 MHz, preferable 350 MHz</p> <p>(Depth of Investigation 10 m)</p> <p>b) Antenna along with survey wheel encoder having center frequency between 800 to 1000 MHz, preferable 900 MHz</p> <p>(Depth of Investigation 1 m)</p> <p>c) Antenna along with 4-wheel handcart for concrete rebar mapping having central frequency between 2.0 to 3 GHz, preferable 2.6 GHz</p> <p>(Depth of Investigation 0.4 m)</p> |
| 3 | Data acquisition software with Manuals | <p>a) Data acquiring in both Line and Grid mode</p> <p>b) Capable of integrating with GPS</p> <p>c) Provision of adding markers during data acquisition</p> <p>d) Capable of applying filters such as automatic gain, time varying gain, background removal and DC removal.</p> |
| 4 | Data processing software with manuals (compatible with windows based OS) | <p>a) Dedicated software for data analysis</p> <p>b) 2D & 3D data processing & interpretation with Multi-layer variable velocity Migration facility</p> <p>c) Data processing capability in 2D and 3D</p> <p>d) Provision of integrating the GPS data</p> <p>e) Capable of applying filters such as automatic gain, time varying gain, background removal and DC removal, migration, multi-layer velocity analysis & migration, interactive interpretation.</p> <p>f) Capable of displaying the data as line scan as well as wiggle trace.</p> <p>g) Line scan display, with zooming in/out facility.</p> <p>h) Acquired radar data should be exportable to 3rd party software e.g. Matlab or LabView</p> |
| 5 | Other Essential Accessories: | <p>a) Rugged Windows 10/7 based light weight (less than 1.25 kg) computing, processing and storage system with at least Intel i5</p> |

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| | | <p>based processor (2.6 GHz to 3,5 GHz processor, 3MB cache, 4GB RAM, at least 12.1” screen with touch), battery backup of at least 6 hrs along with one set of spare battery and charger.</p> <p>b) Spare rechargeable DC battery for control unit may be provided along with spare charger.</p> <p>c) Rechargeable DC battery – 02 set Spare battery for antennae along with 02 set spare chargers for simultaneous charging of spare battery set.</p> |
| 6 | Training, Demonstration and Warranty | <p>a) Demonstration and Training at Institute premises should be provided free of the cost.</p> <p>b) Warranty for 03 years should be quoted applicable from date of commissioning/installation.</p> |