SPECIFICATIONS OF ENDOBRONCHIAL ULTRASOUND SYSTEM (EBUS):

System includes:

I. Ultrasonic Broncho videoscope (for EBUS-TBNA).
II. Ultrasound Processor with Color Doppler function with elastography.
III. Video Processor & Light source.
IV. High resolution monitor.
V. Radial EBUS Probe Driving Unit with essential components.
VI. Accessories for above system.
VII. Latest model to be provided.
VIII. System should include high resolution video processing for clarity of image.

1. Ultrasonic Broncho videoscope (EBUS- TBNA) with following specifications:

1.1 Field of view at 80° and above.
1.2 Depth of field: Approximately 3-50 mm or better.
1.3 Tip deflection: Up at least preferably above 120° Down at least 90°.
1.4 Distal end: 6.7mm +/- 01mm.
1.5 Insertion tube outer diameter: 6.3 mm +/- 01mm.
1.6 Instrument channel width: At least 2 mm.
1.7 Working length: At least 600 mm.
1.8 Acoustic frequency: 5-12 MHz or more.
1.9 Scan angle: 60 degrees or more
1.10 Convex linear Assay Probe with balloon and direct contact option.
1.11 Scan direction parallel to insertion direction.
1.12 Videoscope should preferably have separate channel for balloon inflation with saline which should be easily cleanable.

2. Digital Color Video processor

2.1 300 W or more xenon lamp.
2.2 Video output – Minimum 2 RGBs connectors, 2 Y/Connectors, 01 composite video connector (at least) HD output should be available (DVI/HD-SDI) without converter.
2.3 Minimum 01 printer control connector, 02 external device control connectors; 01 serial connector
2.4 Operating line voltage : 220-240 V
2.5 Should be controlled from the front, keyboard or endoscopy remote switch.
2.6 Should be capable of white balance & adjustment, have provision for standard color change, adjustment automatic gain control (AGC), image enhancement selection etc.
2.7 Should be compatible with the EBUS scope and ultrasound processor.
2.8 Should allow magnification or zoom function on still and dynamic images.
2.9 Should preferably have slot for inserting memory card to store images.
2.10 All essential connectors and cables and other accessories to make the equipment functional and provide transfer of images / videos / data on a computer for storage and reporting.
2.11 User friendly display to facilitate patient data management (reporting) example

: Name, Age, Gender, Bronchoscopy finding etc.

2.12 Should have compatible footswitch or other options for capturing images/ videos during procedure.

2.13 Efficient and user-friendly HD software installed in computer for recording, retrieval of data, storage and easy copying of images/ videos from computer to DVD/ external hard disc.

2.14 Should have facility for image, size selection and freezing of images.

3. Light Source

3.1. Should have 300W Xenon Lamp plus an emergency halogen lamp for automatic back-up in case of defect in main lamp.

3.2. Should be compatible with the software for early diagnosis of neoplastic mucosal changes.

3.3. Should have HD imaging output for clear high resolution images.

3.4. Should have HD-SDI output without converter

3.5. Should have facility for automatic brightness adjustment.

4. Monitor

4.1. Atleast 24" High definition medical grade monitor compatible with processor with full range of colors & inputs including wide viewing angle as needed for proper functioning.

5. Digital Ultrasound Scanner with Color Doppler

5.1. Compatible with the above EBUS video scope & radial probes (360° view)

5.2. High support-to automatically optimize the B-mode and Doppler images parameters (gain, baseline, PRF etc.)

5.3. Picture in picture for both ultrasound and endoscopic image simultaneously.

5.4. High definition dynamic tissue harmonic imaging, High resolution imaging

5.5. Ergonomic operation keyboard for selection of gain, depth, frequency etc; preferably with integrated track-ball annotation arrow mark & pointer display.

5.6. Should have facility to measure distance between two points.

5.7. Availability of B-mode & Doppler mode.

5.8. Preferably should have facilities for lesion, area & volume estimation.

5.9. Wide range of frequency 5-25 MHz or more.

5.10. Preferably should have elastography facility.

5.11 Attachment cord or in-built connection for connecting ultrasound processor to EBUS scope.

6. <u>Computer</u>

- Minimum Intel i7 processor, 8GB RAM, 1 TB hard disk, with pre-installed operating system.
- DVD writer.
- High speed USB slots (at least 2 in number).
- 21” or more LCD color flat monitor with compatible mouse and keyboard.
- UPS with at least 30 minute backup.

- Original Windows-10 software or better.
- Color-Laser Printer
- All essential accessories/ cords etc.

7. Essential Accessories

7.1 EBUS aspiration needle set from the same company or BIS/US-FDA/CE approved, minimum 20 numbers, 21G-20 no. & 19G-20 no. Standard 40 mm length adjustable needle length, mountable on biopsy port of scope, echogenic dimpled needle tip for better ultrasound visibility.

7.2 EBUS balloon 40 no.(minimum) preferably from the same company or BIS/USFDA/CE approved

7.3 Mobile trolley to mount the EBUS system and ultrasound.

7.4 Quoted rate for disposables, consumables be for next 5 years after warranty.The supplier/OEM should ensure the availability of accessories/spare parts/consumables for ten years from the date of purchase of equipment.

7.5 All other essentials/ accessories required to make the machine function optimally.

7.6 Recording System for review & publication.

7.7 Servo voltage stabilizer for the system. Voltage- 240V

7.8 Spare light source Xenon Lamp- 01 no.

7.9 Mouth Bite Guard-10

7.10 Cleaning Brush for working channels-10 each

7.11 Balloon mounting forceps device-2no.

8. <u>RADIAL EBUS:</u>

- Radial ultrasound probe driving unit with frequency range 7.5 to 25 MHz or more.
- Radial ultrasound probes - Two for peripheral lesions.
- Should include slim miniature radial ultrasound probes enabling visualization at higher resolutions
- Compatible biopsy forceps set for peripheral -5no.
- Ultrasound connecting cable.
- Supporting arm for the radial probe.
- Hanger to keep the accessories of linear probes in between procedures
- Guide sheath kit should be provided by the same OEM or BIS/US FDA/CE Approved

9 BIS/ISO/USFDA/CE approved.

10 Warranty for 5 years and after CMC for 5 years including all accessories.

11 Training of staff and personnel for proper usage and maintenance of the system.