Subject: Tender for “Implementation of Video Conferencing System at EPI for New Delhi, Kolkata, Guwahati & Chennai”.

Ref: NIT No. DLI/CON/ITD/580 dated 31.08.2017

Addendum No. 1

1. Amended Technical Specification (Annexure-I) is enclosed.

2. Amended Check list for acceptance test procedure (Annexure-III) is enclosed.

Both the above documents shall be part of tender documents.

All other Terms and Conditions shall remain unchanged.

ED(Contracts)
## Annexure – I

### Technical Specification (Amended)

**Supply, Installation, Testing & Commissioning of Full HD 1+5 Multi-parties Video Conferencing System at New Delhi, Kolkata, Guwahati & Chennai**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particular</th>
<th>Amended Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>Standards and Protocols</td>
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<tr>
<td>3.</td>
<td>People Video Resolution</td>
<td>CIF, SIF, 4 CIF, HD 720, HD 720, HD 1080, HD 1080</td>
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<td>4.</td>
<td>Dual Stream</td>
<td>Standard</td>
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<tr>
<td>5.</td>
<td>Video Inputs</td>
<td>1 x VGA/DVI/DP, Camera Interface must be supplied with Codec &amp; HDMI Port</td>
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<tr>
<td>6.</td>
<td>Video Outputs</td>
<td>1 x DVI or 2 x HDMI or 2 x equivalent HD for Video output.</td>
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<tr>
<td>7.</td>
<td>Audio Inputs</td>
<td>1 x 3.5 mm line-in jack, system should be connected with microphone array) or more</td>
</tr>
<tr>
<td>8.</td>
<td>Audio Outputs</td>
<td>1 x 3.5 mm line-out jack, 1 x HDMI or more</td>
</tr>
<tr>
<td>9.</td>
<td>Other Ports</td>
<td>IP: 10/100 Base-T, 1 x RJ45 (IPv4 Compatible &amp; upgradable with IPv6)</td>
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<tr>
<td>10.</td>
<td>Bandwidth</td>
<td>--</td>
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<tr>
<td>11.</td>
<td>Communication Bandwidth</td>
<td>Communication bandwidth 256 kbps to 6 mbps or better</td>
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<tr>
<td>12.</td>
<td>Connectivity</td>
<td>Point to Point Connectivity</td>
</tr>
<tr>
<td>13.</td>
<td>Video Quality</td>
<td>Full HD 1080P Video quality during video calling at each &amp; every locations</td>
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<tr>
<td>14. Camera</td>
<td>System includes camera with 1920 x 1080p (or better or equivalent), Camera should have 10X Optical Zoom or More, &gt;= 50 deg Field of View at min zoom, +/- 60 deg (or more) pan range, +/-10 deg (or more) tilt range in order to accept Full HD resolution video. The Camera shall have more than 1 meter cord length and connector and 1 x HDMI or equivalent for Main Camera.</td>
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<tr>
<td>15. PC Input</td>
<td>1 x DVI or 1 x HDMI or USB or RGB or VGA for PC connectivity.</td>
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</tr>
<tr>
<td>16. Simultaneous Connected Site</td>
<td>1+5 node minimum at a time in Full HD 1080 resolution</td>
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<tr>
<td>18. Network Functions</td>
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<td>19. External Control</td>
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<tr>
<td>20. Content Sharing Feature</td>
<td>System supports content sharing of Full HD Video and Graphic Content during the video call.</td>
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<tr>
<td>21. Power Input</td>
<td>Accepted as per the industry standard</td>
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<tr>
<td>22. Recording Feature</td>
<td>Accepted as per the industry standard</td>
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</tbody>
</table>
| 23. Other Features | - Full-screen, Picture in Picture, Picture with Picture, Side by Side  
- Echo Canceller, Auto gain control, Stationary noise reduction, Equalizer, Mic mute  
- Network RJ45 x 1 1000BASE-T/100 BASE – T Full Duplex  
- All equipments are in compliance with the requirements of ITU-T Standard related to Video Conferencing.  
- System is supplied complete with the following components from the same OEM: (a) Codec Full HD (b) Full High Definition Camera (c) At least one Omni Directional Microphones with suitable connectivity (d) Remote Control (e) Data sharing capability using hardware or software. System uses standards based protocols and the offered
system is interoperable with any existing H.323 based video conferencing equipment.

- The End Point is an End Point / Point to Point system/
  System upgradable to Multiparty Video conferencing with full high definition camera and codec for simple installation with a TV / Plasma display

4.0 Scope of Work

Supply, Installation, Testing & Commissioning of four (4) numbers of Multi-parties (1+5) Full HD End-point Video Conferencing System for EPI’s at New Delhi, Kolkata, Guwahati & Chennai.

General Information

4.1 Location

Multi-parties (1+5) Full HD End-point Video Conferencing System is required to be installed at EPI’s Regional Offices at various locations like New Delhi, Kolkata, Chennai & Guwahati.

4.2 Existing Technology Environment

The following is a listing of our current video conferencing environment.

- At present, we are using Life size Room 200 at Corporate office and Life size premium cloud at other locations and 10 nos. of Lifesize Premium Cloud License for far locations.

- Our Regional offices (Kolkata, Mumbai, Chennai & Guwahati) are connected with 2 MBPS MPLS connectivity and at corporate office, it is 8 MBPS.

4.3 Compliance to general requirement

Bidders should ensure to comply with following parameters:

4.3.1 Capability/Functionality

- The video conferencing system shall deliver good audio quality for entire conferencing environment.

- The video conferencing system shall deliver best image quality to the entire conferencing environment.
• The video conferencing system should have the ability to schedule and invite any participants (At Corporate Office New Delhi or Regional Offices at Chennai, Guwahati & Kolkata) to a video conferencing session.

• The video conferencing system shall have a management utility capable of centrally managing a video conference session as well as the entire video conferencing system.

• The video conferencing system should have real time content sharing functionalities.

• The system shall display properties of modularity. If part(s) of the system become unavailable, the system shall be able to continue to operate at an acceptable standard.

• The video conferencing system shall support adjustable/ flexible bandwidth for content.

• The system shall be able to operate with other desktop, software, cloud based system and hardware based video conferencing technologies for other vendors.

• The system shall utilize the latest encryption standards and other data security services to ensure that communications and system resources are kept secure and confidential.

4.3.2 Audio Requirements

• The video conferencing system shall support a wide range of the latest audio as per industry standards and digital formats.

• The system should be able to decipher multiple, simultaneous conversations and be able to distinguish which side of the room people are talking from.

• The video conferencing system shall provide audio error concealment facilities (reduce audio drop on busy IP or networks).

• The video conferencing system shall have the ability to correct audio from the communications system easily.

• The video conferencing system shall have built in echo cancellation and other noise suppression functionality.

• The system shall have 360° audio pickup capacities sensitive enough to pick up smart enough to eliminate noise.

4.3.3 Video Requirements

• The video conferencing system shall support a wide range of the latest video industry standards and digital formats.

• The video conferencing system shall support a wide range of the latest video formats and industry standards.
The system shall support but not be limited to the following formats and standards:
- H.261, H263+, H.263++, H.264, H265 video standards
- MPEG, MPEG2 and MPEG4 video formats
- CIF, SIF, 4CIF, VGA, SVGA, XGA display resolution

The video conferencing system shall support video error concealment facilities (reduce video drop on busy IP or networks).

### 4.3.4 Supported Interfaces

- The video conferencing system shall support a wide range of the latest standard interfaces for outputting digital / analog audio and video to external equipment.

- The system shall provide a wide variety of standard network interfaces to facilitate connectivity to various types of networks.

- The video conferencing system shall support a wide range of the latest interfaces for accepting digital / analog audio and video input from external sources.

### 4.3.5 Content Sharing

- The system shall be able to show /share content from a PC / laptop.

- The video conferencing system shall be able to allow laptop / PC IP network to actively participate in a conferencing session.

- The video conferencing system shall have the ability to share presentation data from applications such as but not limited to Microsoft PowerPoint, Excel, Word, drawings etc. on digital whiteboard in real time to local and remote site(s).

### 4.3.6 Supported Network Interfaces and Protocols

- The system shall support a wide variety of standard network interfaces to facilitate connectivity to various types of networks.

- The system shall support but shall not be limited to the following networking protocols:
  - TELNET, HTTP, FTP, PING, DNS (Client), DHCP (Client), RTCP, SIP, RTP, TCP, H.323 (LAN), H.323/H.320 Mixed, ARP.

### 4.3.7 Features

The proposed solution should delivers “in-person” conference experience with support for the following but not limited to

- One or more microphone inputs
• Lip sync
• Sound localization

4.3.8 Performance
• This section should describe the desired performance characteristics for video/audio conferencing.
• This may include High Definition (HD) capabilities, wideband audio, intelligent bandwidth management and/or scaling, Quality of Service (QoS) configuration, and performance reporting/statistics.

4.3.9 Scalability
This section should describe the scalability requirements for the proposed solution, including concurrent Multi-parties (1+5) Full HD End-point Video Conferencing System conferencing capacity needs, overall port capacity for Multi-point Conferencing Unit (MCU) platforms, multi-site management etc.

4.3.10 Integration
The proposed solution must have feature to integration with a third party Unified Communications (UC) platform, and potentially third party Web conferencing services or communications tools.

4.3.11 Deployment and Configuration
• The proposed video conferencing solution will certainly meet following deployment and configuration requirements-
  ➢ Full description of proposed end points must be described about the functioning of system.
  ➢ The proposed product must be highly integrated with display screens. Cameras, speakers, microphones, codecs, control devices, equipment rack and conference table.

4.3.12 Support and Maintenance
• Bidder should have availability in PAN India.
• Require that a detailed description of standard and extended support and maintenance to be provided.

4.3.13 Training
• Training is required to operate the proposed solution to the officials at Video Conferencing system installation location.
4.3.14 Service Provider

- Please state the name of the company which will be delivering service and on-site support for this solution.
CHECK LIST FOR ACCEPTANCE TEST PROCEDURE (Amended)

The bidder must have complied following parameter:

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<th>S.No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>Capability/Functionality</td>
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</table>
| 1 | • The video conferencing system shall deliver good audio quality for entire conferencing environment.  
• The video conferencing system shall deliver best image quality to the entire conferencing environment.  
• The video conferencing system should have the ability to schedule and invite any participants (At Corporate Office or Regional Offices) to a video conferencing session.  
• The video conferencing system shall have a management utility capable of centrally managing a video conference session as well as the entire video conferencing system.  
• The video conferencing system should have real time content sharing functionalities.  
• The system shall display properties of modularity. If part(s) of the system become unavailable, the system shall be able to continue to operate at an acceptable standard.  
• The video conferencing system shall support adjustable/ flexible bandwidth for content.  
• The system shall be able to operate with other desktop, software, cloud based system and hardware based video conferencing technologies for other vendors.  
• The system shall utilize the latest encryption standards and other data security services to ensure that communications and system resources are kept secure and confidential.  
• The Full HD VC system package should contain codec, 1080p PTZ Camera, conference speaker phone with two expansion microphone, remote control and cables. |
### Audio Requirements

2. • The video conferencing system shall support a wide range of the latest audio as per industry standards and digital formats.
   • The system should be able to decipher multiple, simultaneous conversations and be able to distinguish which side of the room people are talking from.
   • The video conferencing system shall provide audio error concealment facilities (reduce audio drop on busy IP or networks).
   • The video conferencing system shall have the ability to correct audio from the communications system easily.
   • The video conferencing system shall have built in echo cancellation and other noise suppression functionality.
   • The system shall have 360° audio pickup capacities sensitive enough to pick up smart enough to eliminate noise.

### Video Requirements

3. • The video conferencing system shall support a wide range of the latest video industry standards and digital formats.
   • The video conferencing system shall support a wide range of the latest video formats and industry standards.
   • The system shall support but not be limited to the following formats and standards:
     - H.261, H.263++, H264 video standards
     - CIF, SIF, 4CIF, VGA, SVGA, XGA display resolution
   The video conferencing system shall support video error concealment facilities (reduce video drop on busy IP or networks).

### Supported Interfaces

4. • The video conferencing system shall support a wide range of the latest standard interfaces for outputting digital / analog audio and video to external equipment.
   • The system shall provide a wide variety of standard network interfaces to facilitate connectivity to various types of networks.
   • The video conferencing system shall support a wide range of the latest interfaces for accepting digital / analog audio and video input from external sources.
## Content Sharing

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| 5 | - The system shall be able to show/share content from a PC / laptop.  
- The video conferencing system shall be able to allow laptop / PC IP network to actively participate in a conferencing session.  
- The video conferencing system shall have the ability to share presentation data from applications such as but not limited to Microsoft PowerPoint, Excel, Word, drawings etc. on digital whiteboard in real time to local and remote site(s). |

## Supported Network Interfaces and Protocols

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| 6 | - The system shall support a wide variety of standard network interfaces to facilitate connectivity to various types of networks.  
- The system shall support but shall not be limited to the following networking protocols:  
  TELNET, HTTP, FTP, PING, DNS (Client), DHCP (Client), RTCP, SIP, RTP, TCP, H.323 (LAN), H.323/H.320 Mixed, ARP. |

## Features

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| 7 | The proposed solution should delivers “in-person” conference experience with support for the following but not limited to  
- Three-channels stereo audio  
- One or more microphone inputs  
- Lip sync  
- Sound localization |

## Performance

<p>| | |</p>
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| 8 | - This section should describe the desired performance characteristics for video/audio conferencing.  
- This may include High Definition (HD) capabilities, wideband audio, intelligent bandwidth management and/or scaling, Quality of Service (QoS) configuration, and performance reporting/statistics. |
### Scalability

| 9 | This section should describe the scalability requirements for the proposed solution, including concurrent Multi-parties (1+5) Full HD End-point Video Conferencing System conferencing capacity needs, overall port capacity for Multi-point Conferencing Unit (MCU) platforms, multi-site management etc. |

### Integration

| 10 | This proposed system should have integration with other VC system based on future requirement. |

### Deployment and Configuration

| 11 | The proposed video conferencing solution will certainly meet following deployment and configuration requirements-  
- Functioning of proposed Multipoint (1+5) video conferencing system with proper connectivity with other locations.  
- The proposed Multipoint (1+5) video conferencing system will be highly integrated with display screens, Cameras, speakers, microphones, codecs, control devices, equipment rack and conference table.  
- The system shall support a wide variety of standard network interfaces to facilitate connectivity to various types of networks.  
- The video conferencing system shall have a management utility capable of centrally managing a video conference session including recording facility, content sharing and calling from any location feature. |

### Support and Maintenance

| 12 | • Bidder should have availability in PAN India.  
• Require that a detailed description of standard and extended support and maintenance to be provided.  
• Please state the name of the company which will be delivering service and on-site support for this solution. |
### Training

- Training is required to operate the proposed Multipoint (1+5) video conferencing system to the officials at Video Conferencing system installation location in following manner:
  - How to call other locations?
  - How to record entire session?
  - How to use content sharing feature?
  - How to connect with smart phone, Tab etc.?
  - How to communicate with other network?

### Other

- The proposed system must support PAL with a PTZ camera. The codec must be based on ITU standards The VC End Point should be a codec based hardware. No software based solution is accepted here. All components of the VC system like Codec, Camera, Phone and Microphone should be from the same OEM.
- The System should have inbuilt recording facility for video call as well as idle situation. No external recording devices should be allowed for this feature, it must be inbuilt in codec from day1.
- The VC system should support conference phone with 360°audio pick up, display, 3 array microphones and inbuilt speaker. It should have coverage of min. 10 feet.
- The camera should have HDMI, DVI output. It must be supplied with standard cable and should be expandable up to 10 meters without using external adopters.
- The Remote Control should have controls like mute button, presentation on-off feature, Call dial/ Hang-up feature, Volume Control Feature etc.
- The VC system should support IPV4 and upgradable to IPV6 dual stack.
- The VC System should support firewall and NAT Traversal protocols
- The VC system should have red remote control which can operate with a distance of min. 4 meters.
- The VC System should have IP adoptive bandwidth management with packet loss recovery.

The VC system should support minimum 5 party video call or more & all party should be in continuous presence with Full HD visual.

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**Signature of bidders with official stamps**

**Date & place**