OVERVIEW

Period
November 2016

SW-Version
ce8.2.2 (Collaboration Endpoint)

Device class
The Cisco TelePresence DX 80 is a full HD capable office and desktop system, consisting of a 23" full HD LCD multi-touchscreen with a mechanically pivotable HD camera (1080p30), integrated microphones and speakers. Connecting a headset is optionally possible.

SW Version
ce8.2.2 (Collaboration Endpoint)

Protocols and bandwidths
The device enables calls via H.323 and SIP with a bandwidth up to 3072 kbps. The video resolution of 720p30 requires at least a bandwidth up to 768 kbps and full HD with 1080p30 requires at least 1472 kbps. The data transmission is realised by H.239 or BFCP.
INSTALLATION

The device CiscoTelePresence DX80 can be easily put in operation by connecting of all the necessary cables for ethernet, power supply and data presentation. The enclosed documentation can be consulted if necessary. The camera can be used as well as document camera.

After the device has been turned on, the installation wizard starts to connect the system to the Cisco Unified Communication Architecture. With the transition of the operating system from Android to the new CE-version (based on the Cisco TelePresence MX-300 series), the possibility to use the device via H.323/SIP in the stand-alone-operation is available. The necessary H.323/SIP-configuration can be done by the remote control of the device.

TEST

Start / Power consumption
The device takes about 55 seconds after switching on the power until it maintains the operational readiness. Switching from the standby mode to the operation mode takes 2 seconds. The typical annual power consumption is around 73 kWh.

Operation
The device can be operated by a touch screen. Smartphone experienced fingers find their way immediately. The on-screen navigation is very clear, self-explanatory and limited to the necessary functions to run a video conference. Helpful hints are shown to the user, if something is missing or is not working, for example if the camera shutter was not opened and no video is displayed.

Audio and Video
The audio in tested connections was encoded with AAC_LD, G.722.1 or G.722. With one exception the audio quality was rated as very good.

With a few exceptions the video quality was very good in the tested connections, otherwise the quality was rated as good. Furthermore, the video compression was using the video codec H.264. About the half of the connections were done by the maximum possible video format 1080p, otherwise the format 720p was used.

Data presentation
For the transmission of data presentations the video codec H.264 was used in the format 720p or higher. If the data presentation was sent with 1080p, the video formats were mostly reduced from 1080p to 720p.

The quality of the slide presentation (static content) could be rated in nearly all tests as very good. In the connection to the LifeSize Team 220, when the device called, the received slides of the CiscoTelePresence DX80 started to form block artefacts by the long resharpening time.

The practical usability of the transmission of SD movies was verified in about 50% of the tests. In most of the tests of practical usage, the transmission of HD movies could not convince. A too low frame rate (between 1-5 fps) prevents the "movie feeling". Only by a frame rate of 7 fps or higher, the received movie can be watched as a movie. In the connection to the Polycom Debut, both the SD movies and the HD movies had massiv delays in receiving on the part of the CiscoTelePresence DX80. The delay becomes constantly bigger, so the device had be completely restarted.

Detailed test results can be found in the compatibility matrix.

Camera remote control
The CiscoTelePresence DX80 could control the remote site as long as the technical requirements of the receiver were conform.

Service DFNVideoConference
The cooperation with the DFN-MCU works very good. H.264 was utilised as video codec and as resolution were used 720p@30 fps in transmitter direction and 1080p@25 fps in receive direction. As Audio codec AAC-LD was utilised with 64 kbps in transmitter and 128 kbps in receive direction. At the transmission of data presentations H.264 was used with 720p.

**SIP- and URI-Dialing**

Calls to the DFN-MCU are possible via SIP-dialing with the syntax "Konferenz-ID@vc.dfn.de". In this case, the transmission of a data presentation can be done in a second channel via BFCP. Calls via URI-dialing by H.323 Version 5 (formerly H.323 Annex O) are possible with the syntax "Konferenz-ID@vc.dfn.de", provided that the video conference device is not registered at a gatekeeper.

**Encryption**

All connections were realised with a H.235 with AES-128 media encryption.

**CONCLUSION**

The Cisco TelePresence DX80 is a small, fancy full HD capable office system for desk workplaces. With the switch to the collaboration endpoint software version 8.2.0 (CE8.2.0), the device can be used via H.323/SIP for stand alone operations without being involved in the Cisco Unified Communication Architecture. The transmission of static content at data presentations works in a very good quality. The transmission of dynamic content, like HD movies, is not convincing yet, caused by low frame rates.

**Documentation**

Manufacturer: Cisco, Datasheet 2016

<table>
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<tr>
<th>Supported General Standards</th>
<th>H.323 and H.239, SIP and BFCP</th>
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<tr>
<td>Video Compression</td>
<td>H.263, H.263+, H.264, AVC (H.264/MPEG-4 Part 10 Advanced Video Coding)</td>
</tr>
<tr>
<td>Resolution</td>
<td>Data presentation up to 1080p with 30 fps in video and WXGA mit 5 fps data presentation</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>up to 3 Mbps</td>
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