GENERAL

**Period**
April 2014

**SW-Version**
4.1.3

**Device Class**
The Polycom RealPresence Group 700 device is the most powerful of the RealPresence Group serial of Polycom. It can be used as settop system or be installed in a 19"-Rack. With its many data links it is flexibly applicable as group system or for the integration in lecture halls. Compared to the Polycom RealPresence Group 500, the Polycom RealPresence Group differs basically in the possibility to connect a second camera and a second Polycom RealPresence Group microphone, the availability of more audio and video links and a separate HDMI output for the usage of a conference recording device.

**Scope of Delivery**
The Polycom RealPresence Group 700 is delivered with codec, a Polycom EagleEye IV camera, a Polycom RealPresence Group microphone array, a remote control and all the necessary cables. Further options such as the integrated MultiPoint option and the support of 1080p can be purchased additionally or with an optional license key.

**Protocols and Bandwidths**
The system permits calls with H.323 and SIP using a bandwidth up to 6 Mbps. Supporting the Telepresence Interoperability Protocol (TIP) it does also allow direct connections without a gateway to non-standard based Telepresence systems by Cisco.
INSTALLATION

The basic installation is easily done with the enclosed documents, and even the advanced installations are well-achievable thanks to the clearly arranged links on the back side. After a few adjustments in the setup assistant and the menu the device is operative. Excepted the camera and microphone links there are no proprietary plug sockets. Non-proprietary plug sockets are always provided as an alternative for each of these links.

The Polycom RealPresence Group 700 provides 7 video inputs (2x HDCI, 3x HDMI, 1x YPbPr, 1x VGA) merged to 4 logical inputs. Further there is the possibility to connect up to three screens/projectors or different devices such as a conference recording device with HDMI or VGA. Additional to the HDMI-contained audio there are still two RCA inputs (Cinch) and a RCA output.

TEST

Operation
Like the Polycom RealPresence Group 500, the Polycom RealPresence Group 700 provides the new Polycom user interface. That interface is quite coherent, but sometimes requires a lot of keystrokes to reach the goal. The abolition of the button for direct start and stop of content transmission on the remote control causes unusual additional expenses, because you need to click through a few menus until the desired data presentation can be sent.

As an additional way to operate the PolycomPresence Group 700, Polycom offers the SmartPairing technology using the Polycom RealPresence app for operating the system with mobile devices.

**Audio**

The audio qualities were totally convincing during the test. The audio has nearly always been rated with “excellent”. Only one exception concerning the Polycom RealPresence Desktop (Windows version) was rated with “good”. This rating follows from minor audio problems during the data presentation.

The codecs used for transmission are G.722, G.722.1, G.722.1C and Siren LPR.

**Video**

The position of Polycom RealPresence Group 700 as a powerful system in the Polycom RealPresence Group serial is also proved by its video transmission characteristics. The video quality has been rated with “excellent” in all connections from both sides. The video codec was always H.264. The used resolutions were at least 720p, during a third of all tests even 1080p. Lower resolutions were only used in connection with the Polycom RealPresence Mobile App on the iPad or with Android (512x288, 480x272, 320x180).

**Data Presentation**

The transmission of the data presentation of the Polycom RealPresence Group 700 could not fully convince. The data channel constantly reached resolutions of at least 720p with nearly always H.264 (usual is H.263) as video codec but transferring slide presentations (static content) and HD videos, disturbing effects were generated.

After the transmission of more complicated static content to other devices, the image was rebuild and refocused in constant intervals (a few seconds). That problem occurred in all tested connections, excepted with the Sony PCS XG80. This constant fitfulness appearing in actually static contents does enormously disturb the desired transmission, so that only 50% of all transmissions got the rating “excellent” (mostly receivers). The other transmissions got ratings from “satisfactory” to “good” (mostly transmitting devices).

The transmission and reception of SD videos succeeded much better. In this range the Polycom RealPresence Group 700 did not offer any weaknesses. Only the low frame rates that were transmitted by some receivers partially avoided the practical use according to the reception of SD videos.

The transmission of HD videos caused major problems. Transmitting this content the effects were very similar to those which occurred during the slide presentation. That means that in constant intervals the image was elementarily rebuild and the following necessary refocus caused the formation of blocks. A practical use was only possible with one third of all tests (mostly receiver). In other cases the error occurred while sending content or caused by a too low frame rate of the receiver.

In Connection with LifeSize Softphone and Polycom RealPresence Desktop specific problems were generated. The data presentation from the site of LifeSize Softphone in the Windows and the Mac version could not be stopped. The Windows version had also no self-view and the video image of the Polycom Group 700 disappeared upon receiving the data presentation which was displayed with a large black border. Using the Mac version of Polycom RealPresence Desktop enormous image errors on the Polycom RealPresence Desktop site were generated as soon as Polycom RealPresence Group 700 stopped a data presentation.

Detailed test results can be found in the compatibility matrix.

**Camera Remote Control**

As long as the technical requirements of the receiver were conform, the camera remote control worked in all tests.

**Service DFNVideoConference**
Collaboration with DFN-MCU worked without restrictions. Audio and video quality was excellent. H.264 was used with 720p@25 in transmitters and with 1080p@25 in receivers. G.722.1C as well as Polycom Siren 14 were used for audio. H.264 with 720p was used for the transmission of data presentations.

**Gatekeeper**

Collaboration with the gatekeepers GNU-GK and CISCO MCM worked without restrictions.

**SIP**

Calling to DFN-MCU via SIP-Dialing is possible with the syntax “Konferenz-ID@mcu.vc.dfn.de”. A data presentation can be transmitted in the second channel with BFCP at the same time. The errors occurred with the Polycom RealPresence Group 500 could not be observed.

**URI-Dialing**

Calls via URI dialing according to H.323 Annex O work with the syntax "mcu.vc.dfn.de##Konferenz-ID" without a restriction as long as there is no login with any Gatekeeper. In case the device is logged on in a Gatekeeper URI dialing is not operable.

**Encryption and Firewall-Traversal**

Excepted the Polycom RealPresence Mobile App all connections were encrypted with AES-128 or rather AES-256 to H.235.6 (H.323) or rather RFC 3711, 4568, 6188 (SIP).

The device does also support Firewall-Traversal according to H.460.18 and H.460.19.

**Miscellaneous**

With a separately purchased optional license key one internal MCU of the Polycom RealPresence Group 700 can be used for 8 receivers. Using 720p (HD) there are only 4 receivers possible.

The Polycom RealPresence Group 700 supports the cooperation with Microsoft Lync 2010/2013.

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**CONCLUSION**

The Polycom RealPresence Group 700 is a powerful and flexibly applicable device which should of cause be applied, whenever the power of the Polycom RealPresence Group 500 is not sufficient. Regarding the audio and video qualities it shows no weakness and especially in connection with modern devices the system proves its full power with 1080p@30. The only drop of bitterness is the rather average result in the range of data presentation which is mostly caused by the problem of permanent rebuild of the image. This error does influence the overall impression heavily negative, particularly because the Polycom RealPresence Group 700 is the flagship product of the Polycom RealPresence Group serial.

**Documentation**

We would like to thank Mrs. U. Lätzsch from the Polycom company for the assignment for the test.

Manufacturer: Polycom
Contact Person: Mrs. U. Lätzsch

<table>
<thead>
<tr>
<th><strong>Supported General Standards</strong></th>
<th>H.323, SIP, H.239, BFCP</th>
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<tbody>
<tr>
<td><strong>Video Compression</strong></td>
<td>H.261, H.263, H.264</td>
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<tr>
<td><strong>Resolution</strong></td>
<td>up to 1080p with 60 fps in video and data presentation, maximum resolution: 1920x1200 (not reached in the test)</td>
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<tr>
<td><strong>Bandwidth</strong></td>
<td>up to 6 Mbps</td>
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