**OVERVIEW**

**Period**
January - February 2017

**SW Version**
LS_RM3_3.0.0 (115)

**Device class**
The Lifesize Icon 450 is a full HD capable set-top system for small groups (Huddle Rooms) consisting of a codec with a integrated 1080p30 PTZ-Camera and a Lifesize Phone HD used as microphone. The wide-angle Camera with a 80 degree horizontal field of view, has a 5x, optical zoom. A implemented smart-framing sensor should guarantee, that all conference members stay visible in one connection. The Lifesize Phone HD is equipped with a touchscreen control.

**Protocols and bandwidths**
The device is connecting calls through H.323 up to a bandwidth of 6000 kbps. The data transfer is realised using H.239. SIP-Calls are possible via registration at a SIP registrar.
INSTALLATION

The Lifesize Icon 450 can be quickly put in operation by connecting all the necessary cables for ethernet, power supply, microphone or with audio/video output and data presentation by HDMI. The microphone is connected with the Lifesize Phone HD by a proprietary Lifesize-connection cable. The clear quick reference card is enclosed and supports the commissioning if required. After the device has been turned on, the network configuration can be applied by the administrator menu. The system is intended to be integrated into the Lifesize Cloud. At the VCC, the device was tested in the stand-alone mode for the usage of the service DFNVC. Other required configurations, for example H.323, were occurred by a web access to the device. Configurations directly at the device are not possible. The web interface has a clear structure and is self-explanatory.

TEST

Start / Power consumption

The device takes about 100 seconds after switching on the power until it maintains the operational readiness. Switching from standby mode to the operation mode takes 12 seconds. The typical annual power consumption is around 89 kWh.

Operation

There are two ways to operate the device that can be used as needed. The touchscreen control from the Lifesize Phone HD or the menu control from the video output with remote control. The handling is clear, simple and self-explanatory. The remote control became completely reduced. It consists of one button for mute and unmute, and 4 directions keys with an ok-button. With this way to operate, its easy to handle the menu and also to enter, for example configurations and calls.

Audio and Video

The audio in tested connections was encoded with AAC-LD, AAC-LC, G.722.1C or G.722. With one exception the audio quality was rated as very good. In the connection to the Polycom Debut with the latest Software, the device did not received any audio. The connection statics shows, that the Polycom Debut Siren is using LPQRSAC as the audiocodec, while the Lifesize 450 sends with G.722.1C. Because the two devices could not agree on a single codec, there could not be received any audio signals.

The video quality in all tested connections was very good. Futhermore, the video compression was using the video codec H.264. Half of the connections were made with the maximum possible video format 1080p, otherwise the format 720p was used.

Data presentation

During the individual test connections the video codec H.264 was used for the transmission of data presentations, with one exception it was transmitted in the format H.263+. In most cases of the test connections the formats 720p and 1080p were used. At the same time, various other formats were used temporary between the tested devices. Especially for the transmission of SD- and HD Movies (592x336,764x360,1508x848 and other). Depending on the data presentation, the format switches briefly to a lower resolution in favour of the frame rate which rises strongly. With this possibility the system regulates dynamically the quality parameters in favour of the data presentation. The quality of the slide presentations (static content) could be rated in nearly all tests as very good and in the rest as good. The practical usability of the transmission of SD movies was verified in approx. 80% of the tests. The transmission of HD movies could convince in approx.65% in the tests of data presentation. In all other cases the frame rate was too low so that the movie was perceived by the viewer as not fluently or the blocking artefacts compromises the quality. Detailed findings can be found in the compatibility matrix.

Camera remote control

The Lifesize Icon 450 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 AACLD was utilised with 64 kbps in transmitter and 96 kbps in receive direction. At the transmission of data presentations H.264 was used with 720p.

Encryption

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

Others

The Lifesize Icon 450 offers a spam filter configuration.

CONCLUSION

The Lifesize Icon 450 is a small full HD capable settop system for small group conference with a very good audio and video quality. The quality also convinces in the field of data presentation. The device can be used for the cloud-based video communications platform by Lifesize and as well as in the stand alone operation. Together with a simple operating concept it can be fully recommended.

Documentation

Manufacturer: Lifesize, Datasheet 2016

<table>
<thead>
<tr>
<th><strong>Supported General Standards</strong></th>
<th>H.323 and H.239, SIP and BFCP</th>
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<tbody>
<tr>
<td><strong>Audio Codings</strong></td>
<td>G.711, G.722, G.722.1, and G.722.1C licensed from Polycom®, MPEG-4-AAC-LC, MPEG-4 AAC-LD, Opus</td>
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<tr>
<td><strong>Video Compression</strong></td>
<td>H.264 High Profile, H.264 Baseline Profile, H.263+</td>
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<tr>
<td><strong>Resolution</strong></td>
<td>up to 1080p with 30 fps</td>
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<tr>
<td><strong>Bandwidth</strong></td>
<td>up to 6000 kbps</td>
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