GENERAL

Testing Period:
The video conference software vPoint HD 8.0 (surface image) was tested in the VCC in the beginning of March 2008.

SW-Version
The software Emblaze-VCON vPoint HD is existant in the version 8.0. A crucial difference from the SW-version 7.1 is the possibility of sending 720p. The focus of the tests was set upon this new possibility.

There are three licensed models: Basic, Pro and Executive. The additional variant Broadcast which is enlisted in the data sheets is intended to be used only professionally with providers, television channels or related institutions which want to broadcast contents.

The difference between the single variants are the maximum possible bandwidths for H.264, the possible resolution and the display of the H.239 data stream.

Substantial differences between the licensed models

<table>
<thead>
<tr>
<th></th>
<th>Basic</th>
<th>Pro</th>
<th>Executive</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. bandwidth</td>
<td>512 kbps</td>
<td>1024 kbps</td>
<td>2048 kbps</td>
</tr>
<tr>
<td>max. resolution</td>
<td>VGA</td>
<td>4 CIF + 720p</td>
<td>4 CIF + 720p</td>
</tr>
<tr>
<td>additional data</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

Device Class
The video conference system vPoint HD 8.0 is a software client for the operating systems Windows 2000, XP and Vista. The software can only be run with a legal license file, USB-Dongle or after registering on a license server. Should these preconditions be absent, runtime is constricted to three minutes only. Furthermore, the script nameplate "Emblaze-VCON" is set into the image, hence, usage without disturbances is nearly impossible. The dongles of the preceding versions are not applicable.

The manufacturer makes demands on the available PC for sending 720p. These are to be respected in any case, as the entire power spectrum of the software will be impaired if the demands are not maintained. PCs should come into operation with a processor not older than the type series Intel Core2 Duo E 6400, laptops should use a processor not older than Intel Core2 Duo T7500. More recent models are recommended.

Scope of Delivery
The software can be purchased on the website of the producer. It is applicable immediately after clearing with one of the upper given variants.

The producer recommends HD-capable webcams or the connection of a Sony EVI-HD 1 via a HD-capable Capture-Card for use. Should the camera not support more than 15 fps, the HD-resolution is converted to 960*720 (almost “HD-like”). This resolution is sent around the image as a HD-frame via a black frame.

Bandwidths
The video conference system enables video conferences in the LAN-area up to 4 Mbps.
ISDN-conferences are only accomplishable with the licensed models Pro and Executive up to 512 kbps. The company-own ISDN-Box EVC ISDNPoint is necessary for this application. It needs to be purchased additionally.

### INSTALLATION

Installation can be carried out smoothly. The efficiency of the CPU is checked and the possible audio and video capacities are adjusted accordingly while the Setup is carried out. This check can be changed with the provided Tools Evcperf.exe, should the automatic check lead to an unsatisfying or even wrong result.

Should the performance of the processor be insufficient in the running mode, the sent framerate is reduced. This is displayed in the operating system Windows XP with a glowing red lamp in the software. There is no such help if Windows Vista is used.

All options of the software should be activated before first use as not all of them are preset automatically. The use of 720p, for instance, needs to be allowed first.

### TEST

#### Operation

The operation of the software has barely changed. The experienced VCON-user can find everything quickly and at the same place despite the slightly changed program interface.

The font sizes of the menues are always the same no matter what the image size is. They are also too small in proportion to the desktop resolution. A possibility of user influence would be desirable for ergonomic reasons. The same applies to the icons which only have one additional background blue shade. Therefore, the user needs to focus on them.

#### Audio/Video

The video was good or even very good in all tested connections. Audio was always sent and received in good or even very good quality. Nevertheless, echo suppression usually lasted some tenths of a second until the microphone amplification was coherent to own speech.

Problems with audio quality may be encountered (e.g. disruptances, disturbances) should the hardware not accomplish the minimum requirements. This results from the fact that the processor load is consistently full.

**H.264**

Sending H.264 was always possible up to the bandwidths which are given in the documentation for the respective variants of the software.

**H.239**

The Presentation by means of H.239 was usually very good when slides were transferred. The quality of the received page was consistently very good and the font size was readable from 10 pixels on in all cases. Change nearly occurred in real-time. The presentation transmittal can be given more bandwidth if available should problems be encountered in this field. This leads to a faster transmittal with H.239.

If possible, the presentation of a video should not be carried out via "Desktop Sharing". The recipient will not receive a fluent video, but a kind of slide show. This effect occurs in all program variants. The menu item "Send File" should be selected for transmittal of a video. In this case, the recipient gets a real-time video in very good quality.

In the program variant Basic the received H.239-image is displayed in the same window instead of the video. The window is adjusted to the size when a H.239 stream is received in the format 4:3. The window is not set back to the original aspect ratio after the end of the presentation, even if the video was received in the format 16:9. It is displayed in the format 4:3.
Remote Control

Remote Control always worked in both directions when the technical requirements at the remote stations were set properly.

MCU

The possibility of video communication via 720p was scrutinized with strong effort in the tests. A PC with Intel Core2 Duo E 6850; 3GHz; 2GByte RAM and Vista Ultimate was applied for testing purposes.

The Codian received H.263+ and sent H.264 in a connection with 4 Mbps. The vPoint sent erroneous content (colored grains in the image) while the CPU load was 100%. The Codian sent and received H.264 in a connection with 2 Mbps. The video of the vPoint was satisfactory, there were no disturbances. The CPU load was 100% again.

When the MCU tried to connect to less powerful processors, considerable image and sound disturbances were encountered. These can be eliminated only by reducing the bandwidth.

Gatekeeper

Co-operation with the Gatekeepers GNU-GK 2.0.7 and CISCO MCM was not ideal. Logon to the devices was successful after several intents only. Later on, the co-operation was steady.

Miscellaneous

Encoding was carried out via AES in all tested connections.

The applied processors had a load of about 50% in connections without 720p. In connections with 720p, the load was 60% or even 100%. In order to keep all functions running in good or very good quality, a PC with a far higher capacity is needed than the one demanded by the Emblaze-VCON.

CONCLUSION

The system Emblaze-VCON vPoint HD 8.0 is a software-based VC system which can be recommended for use at the workplace for video and audio conferences in the SD area with H.239 functionality.

Use of 720p depends heavily on the performance of the available processor. The client can be applied perfectly with 2 Mbps if a powerful, up-to-date PC is at hand. A 3GHz CPU is not sufficient for this resolution with 4 Mbps already, as vPoint applies H.263 only.

Documentation

Producer: VCON Emblaze
Distributor: Meytec

<table>
<thead>
<tr>
<th>General Supported Standards</th>
<th>H.320, H.323, H.239, H.235 (AES)</th>
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<tbody>
<tr>
<td>Video Compression</td>
<td>H.261, H.263, H.263 +, H.263 ++, H264 (when sending up to 2 Mbps)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>4 Mbps IP; 512 kbps ISDN</td>
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We thank the company Meytec for support during the tests. We would also like to thank the company Emblaze-VCON for providing the test versions.