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## *Germany : An ARD affiliate chooses Tcube Peach for Subtitle check and edit*

7 Peach units from Tcube have been installed in an ARD Affiliate for Subtitle check and edit. While one unit is devoted to back up, 2 units run **VB1510**, dual channel Text inserter from OP47 data. Remaining 4 units run **VB1600**, single channel Text Inserter from STL files.

### **Monitoring transmitted subtitles**

A common practice within operations today is to create a unique non compressed HD SDI stream containing, video, audio and subtitle data, sent to the facility making DVB encoding. Before sending to encoding facility, user require to monitor quality and presence of the different essences (video, audio, sub). Subtitles in HD live stream are transmitted as ancillary data, using either OP47 or SMPTE2031 protocols. Internal syntax of sub data follows World Standard teletext (WST) specifications.



Then monitoring requires **burning subtitles over real time video**. That means extracting OP47/S2031 ancillary data, implement a WST decoder, generate a bit map that is burned (keyed) over incoming video. All that in real time. This is exactly what **Peach/VB1510** does, on a dual channel architecture, that means two independent channels in the same ½ 19" RU.

### **Checking STL files used for real time transmission**

Prior to the real time transmission of the unique non compressed HD SDI stream, subtitle data are stored as STL files. STL files consist of a set of data containing Time Code and Subtitles.

When playing video, each time video Time Code matches STL time code, subtitle data is inserted as an OP47/S2031 packet.

The STL file is a **dematerialized version** of embedded Teletext data. This dematerialization offers the possibility of **subtitle re-editing**, and **precise time adjustment** referred to video.

Checking the STL file is done by **burning subtitles** over video. As JOG and SHUTTLE functions are used, the STL monitoring unit needs to be **locked to incoming video Time Code**. It is commonly found that an offset exists between video TC and STL TC. Monitoring unit must be able to **compensate such an offset** to avoid the complete re-edit of STL file.

Involved processes within **Peach/VB1600** consist of loading an STL file over the network, extract Time Code embedded in incoming video (alternatively from longitudinal time code input), calculate STL time code (offset compensation) and search within the STL file the associated subtitle chain, then convert into bit map graphics (in accordance with colors, centering and size of incoming data) and burn over video.



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### Graphics quality and conformity

VB1510 and VB1600 are rendering graphics with careful attention to the original content. This concerns font size (either single or double height), colors (especially for impaired hearing subtitles) and text centering. Font itself and font size are user selectable to provide maximal reading quality for personals involved in monitoring.



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