

Summary



Vclips VC031A Video Clips for Testing and Optimization of Video Compression

Encoder Series – VC031A, E-USA HD

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General Safety Summary

Use this product only as specified.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other product manuals for warnings and cautions related to their operation.

Summary: VC-031-A E-USA HD

Encoder Test Series	VC-031-A E-USA HD
Purpose	Test High Definition (HD) encoders with all variants of movement and lighting
Content	City scenes with fast/slow movement, tracking, pan, zoom, rotation, high contrast, low contrast, bright colours, dull colours, monochromatic areas, scene change, day, night, people, vehicles, talking heads, buildings
Number of clips	55 scenes all provided at sizes: <ul style="list-style-type: none"> • 720p 1280x720, progressive scan (nos. V0310nn) • 1080i 1920x1088, interlaced scan (nos. V0311nn) i.e. total 110 clips
Total disk size	170 GBytes
Video format	YUV 4:2:0 planar, 8 bits per pixel
How supplied	On hard disk drive unit (with USB 2.0 and Firewire/1394 interfaces)
Software supplied	YUV viewer YUV field splitter in folder: \Software
Documentation	PDF of this manual in folder: \Documentation

Manual revision: A.1

1. Introduction

This set of video sequences is designed to test and stress a High Definition (HD) video encoder by providing a diverse set of video clips which have all types of movement and lighting conditions:

- ❑ movement types such as pan, zoom, rotation, object movement in foreground and background, objects moving in/out/across, tracking movement;
- ❑ subject types such as people, vehicles, buildings, trees, sky, water;
- ❑ colours - bright to dark, high/low contrast, monochromatic areas;
- ❑ lighting conditions such as bright daylight, dull daytime, night, dusk;
- ❑ details such as fine lines, moiré patterns;
- ❑ other challenging features, such as fast zooms, scene changes, rapid brightness changes, focus changes.

In many cases the lighting conditions and movement are non-ideal: for example, the picture overall is too light or too dark, or a hand-held camera is used, or the subjects are blurred or sometimes out of focus, or there are rapid brightness changes due to the use of automatic gain control on the camera.

These features are deliberately inserted/used as they can often cause the greatest difficulty to video encoders, and these represent the boundary conditions (worst case) that the encoder should encounter with 'real' video clips.

In general the scenes are quite high brightness, as it is easier to see encoder artefacts in a bright scene.

2. Installation, Backup

2.1 Backup

These video files are provided on a hard disk unit. Although the unit has been extensively tested prior to delivery, like all hard disks it *could* fail.

Therefore we strongly advise you to back up all the data on this hard disk unit.

(If the drive does fail, we can provide a replacement unit at low cost, but it could still be highly inconvenient for you.)

2.2 Installation

The hard disk unit has both USB 2.0 and 1394/Firewire interfaces (cables for both are provided). Both these interfaces provide a data transfer speed of over 400 Mbits/sec. Providing you have the correct hardware interface on your computer, the hard disk unit should be recognised automatically, simply by plugging in the cable from the unit to your computer. (The driver disk supplied should not be required.)

3. Description of Clip Set

55 video scenes are provided: each of these is provided at 720p (1280x720, progressive scan, 30 frames/second) and 1080i (1920x1088, interlaced scan, 60 fields per second) resolutions (that is 110 clips in all).

All clips are provided in YUV 4:2:0 format with no header:

- ❑ planar YUV 4:2:0 sub-sampled i.e. 4 bytes of Y data for each byte of U data and each byte of V data;
- ❑ no headers of any kind (no file or frame headers);
- ❑ one byte per sample;
- ❑ progressive scan (not interlaced);
- ❑ row raster order (top picture row first);
- ❑ Y plane values are 0-255 unsigned;
- ❑ U and V plane values are unsigned with a DC offset of 128.

Up-sampling

These video scenes were all originally filmed in progressive format at a resolution of 1280 pixels horizontally x 720 pixels vertically.

In order to generate the 1080i sized sequences, the original sequences were up-sampled.

Vqual has done considerable experimentation and processing to determine the optimum way to do this, balancing many factors, including: apparent resolution; colour fidelity; maintenance of actual data; minimising the introduction of additional artefacts that could significantly affect an encoder; generation of interlace in the 1080i sequences. Inevitably, there have been some compromises which can be seen in the 1080i sequences.

Progressive/Interlace

These video scenes were all originally filmed in progressive format (as is common for 1280x720 resolution).

The 1080i sequences have been up-sampled from the 720p with separate fields generated and Interlace added. The 1080i sequences are supplied as complete frames with the field lines intermixed.

In order to separate the two fields, a utility 'yuvFieldSplit' is supplied which allows you to do this (see section 3.2 below).

Note that for 1080i the bottom field is the first field temporally (as is standard in broadcast systems).

4. Software Supplied

The following software is supplied:

- YUV viewer
- YUV field splitter

4.1 YUV viewer

This program is called: YUVviewer.exe
and is located in the folder: \Software

To run it, double-click on it – it does not need to be installed.

Once it has been run once, it associates files with an extension of .yuv so that after this double-clicking on a file with this extension will automatically open the YUV file in the sequence viewer.

Note that in order for the sequence to be displayed properly, the size must firstly be set in YUVviewer, using the 'Custom' selection.

4.2 YUV field splitter

This program is called: yuvFieldSplit.exe
and is located in the folder: \Software

The purpose is to separate the two fields of the 1080i sequences.

This is a command-line (batch mode) program only: it can only be run from a command prompt/MS-DOS window.

To run it the format for commands is:

```
yuvfieldsplit -i <input file> -t <top field out> -b <bottom field out>
```

NOTE: there is a <space> between each – option and the file name.

To see a list of options enter yuvFieldSplit.exe at the command line (with no arguments).

As an example, to split the file:

```
V031154_Boat_zoom_1920x1088.yuv
```

into two fields, the following command line would be used (this would be entered as one line):

```
yuvfieldsplit -i V031154_Boat_zoom_1920x1088.yuv -t V031154_top.yuv  
              -b V031154_bot.yuv
```

To separate some of the frames, not all, two additional command line flags may be used:

-f <first frame, counting from 0>

-l <last frame>


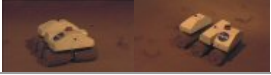






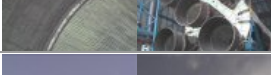
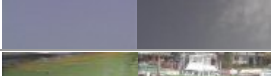

Again, there must be a space between the option and the frame number.

5. Information supplied

The following pages describe in considerable detail each video sequence (source data, contents of the scene).

Clip Number(s)	Title	Main purposes	Duration (mins: secs: frames)	1080i file size (MB)	Begin-End
V0310/V0311 01	Golden Gate zoom	Fine lines, zoom, strong colour, dark	00:41:12	3,892	
V0310/V0311 02	Eighth Ave	People, movement of many objects	00:44:06	4,155	
V0310/V0311 03	Command module	Detail, reflections, text, bright colours	00:14:10	1,347	
V0310/V0311 04	Times Square traffic	High contrast, panning, detail, text, vehicles	00:41:00	3,854	
V0310/V0311 05	Rigging	Fine detail, moiré patterns	00:44:09	4,164	
V0310/V0311 06	CP jog right	Crossing movement left-to-right	00:09:19	906	
V0310/V0311 07	Green water	Reflections, large mono-chromatic area	00:06:24	639	
V0310/V0311 08	Speedboat crossing	Mono-chromatic area, tracking of one object	00:07:15	705	
V0310/V0311 09	Ring riding	High speed global motion and rotation, high contrast	00:44:09	4,164	
V0310/V0311 10	They are	Text, images, detail	00:33:12	3,140	
V0310/V0311 11	Captain Bob	Talking head	00:17:18	1,654	
V0310/V0311 12	Mangroves	Extreme detail, highly similar	00:43:22	4,111	
V0310/V0311 13	Yellow car	Tracking behind foreground objects, vehicles	00:08:23	824	
V0310/V0311 14	Space shuttle	Global motion, mono-chromatic areas	00:11:16	1,084	
V0310/V0311 15	Scuba do	Zoom out, water reflections, text	00:22:04	2,081	
V0310/V0311 16	Times Alliance	Text, graphic images	00:35:10	3,321	
V0310/V0311 17	Washington Circle	Moiré patterns, lines, mono-chromatic areas	00:43:00	4,042	
V0310/V0311 18	Central Park	Low contrast in each area, large bright areas	00:29:22	2,795	
V0310/V0311 19	Statue	Zoom out, dark areas	00:31:13	2,955	
V0310/V0311 20	Golden Gate traffic	Dusk, detail	00:44:06	4,155	

Clip Number(s)	Title	Main purposes	Duration (mins: secs: frames)	1080i file size (MB)	Begin-End
V0310/V0311 21	Flags	Bright colours	00:08:10	783	
V0310/V0311 22	Forest focus	Variable foreground to background focusing	00:24:00	2,256	
V0310/V0311 23	Mars lander	Detail, large mono-colour area	00:18:19	1,752	
V0310/V0311 24	Helicopter takeoff	Fast movement, rotation	00:30:22	2,889	
V0310/V0311 25	Helicopter landing	Fast movement, rotation	00:11:07	1,056	
V0310/V0311 26	Moorings	Detail with high contrast and monochromatic areas	00:04:16	426	
V0310/V0311 27	Statue of Liberty	Global motion, grey images	00:10:20	1,003	
V0310/V0311 28	Water scroll	High speed motion tracking, low contrast	00:17:18	1,654	
V0310/V0311 29	Launch pad	Global motion behind foreground objects	00:07:09	686	
V0310/V0311 30	CP jog left	Crossing movement to left and right	00:07:22	727	
V0310/V0311 31	Golden Gate sunset	High contrast, large dark areas	00:25:22	2,419	
V0310/V0311 32	Fractal water	High detailed low contrast, mono-colour	00:44:12	4,174	
V0310/V0311 33	TS buildings	High contrast, rotation	00:14:21	1,382	
V0310/V0311 34	Tree trunk	Natural images, detailed	00:28:01	2,635	
V0310/V0311 35	Apollo plaques	Text, circular objects, detail	00:36:18	3,441	
V0310/V0311 36	Big Caddy	Zoom out, texture in monochrome area	00:23:16	2,212	
V0310/V0311 37	Speedboat girls	Fast global motion, talking heads	00:19:07	1,808	
V0310/V0311 38	Crowd close	People close-up, many objects moving	00:28:08	2,657	
V0310/V0311 39	Real Thing	Global motion 'jitter' on graphic image	00:40:12	3,798	
V0310/V0311 40	Dinghy crossing	Motion tracking of single object, reflections	00:10:07	962	
V0310/V0311 41	International Dr	Zoom out, detail, vehicles	00:09:17	899	
V0310/V0311 42	Shuttle zoom	Global motion 'jitter' when zooming out	00:15:15	1,457	
V0310/V0311 43	Sunset	Night-time with one bright area	00:05:15	517	

Clip Number(s)	Title	Main purposes	Duration (mins: secs: frames)	1080i file size (MB)	Begin-End
V0310/V0311 44	Peking	Zoom out-in, fine detail, high contrast, text	00:44:07	4,158	
V0310/V0311 45	NASA rover	Slow movement in mono-coloured image	00:23:18	2,219	
V0310/V0311 46	Key Largo boat	Large object tracking	00:30:01	2,823	
V0310/V0311 47	Duck pond	Fine detail foreground & background reflections	00:14:21	1,382	
V0310/V0311 48	Flying saucers	Out-of-focus object tracking	00:34:06	3,215	
V0310/V0311 49	Into bay	Global slow zoom	00:09:05	862	
V0310/V0311 50	Fountain top	Random motion tracking in dark background	00:18:09	1,720	
V0310/V0311 51	Stripy jogger	Fast pan tracking	00:16:06	1,523	
V0310/V0311 52	Saturn V engines	Fine detail zoom, moiré patterns	00:12:07	1,150	
V0310/V0311 53	Sky clouds	Wholly mono-chromatic	00:06:22	633	
V0310/V0311 54	Boat zoom	Fast zooms in highly reflective image	00:04:03	385	
V0310/V0311 55	Times Square 360	360 degree rotation of dark/light image	00:25:13	2,391	