

Summary

Tektronix

**Vclips VC006A
Video Clips for Testing and Optimization of
Video Compression**

Encoder Series – VC006A, E-USA

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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-006-A E-USA

Encoder Test Series	VC-006-A E-USA
Purpose	Test encoders with all variants of movement and lighting
Content	Scenes from New York and San Francisco with fast/slow movement, tracking, pan, zoom, rotation, high contrast, low contrast, bright colours, dull colours, monochromatic areas, day, night, people, vehicles, talking heads, buildings
Number of clips	<p>40 scenes all provided at sizes:</p> <ul style="list-style-type: none"> • D1 720x576 (numbered V006nn1) • CIF 352x288 (numbered V006nn2) • QCIF 176x144 (numbered V006nn3) <p>i.e. total 120 clips</p>
Total disk size	21 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 sequence viewer in folder: \Software
Documentation	PDF of this manual in folder: \Documentation

1. Introduction

This set of video sequences is designed to test and stress a 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, 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

40 video scenes are provided: each of these is provided at D1 (720x576), CIF (352x288) and QCIF (176x144) resolutions (that is 120 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 Y 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.

Interlace

These video scenes were all originally filmed in Interlaced format (as is standard).

This means that the larger format video clips, such as D1 size 720x576 have Interlace effects within them, which the encoder must deal with. (As would be the case with 'real world' video sequences.)

Clips which are CIF (352x288) and QCIF(176x144) have been processed to remove the Interlace. (Again, this is usually the case with clips of this size.)

4. Software supplied

The following software is supplied:

- ❑ YUV sequence viewer

4.1 YUV sequence viewer

This program is called: `YUVSequenceViewer.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.

YUVSequenceViewer tries to work out the size of the video frames from the filename (if it is given in the filename): if there are no clues from the filename then the user must enter the size of the frames.

On the 'Tool' menu there is an option to subtract two YUV sequences, to look for differences between two files. A zero difference results in a constant grey image. To make these differences more visible, select the menu 'View' then 'Options' then enter a number into the 'Subtraction scale' box: the larger the number, the more the differences are multiplied.

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)	D1 file size (MB)	Begin End
V006011,2,3	Zoom rig	Fine lines, moiré patterns, high detail	0:12:03	188.5	
V006021,2,3	TS rotate	Rotation, text, light dark, high detail	0:35:10	550.5	
V006031,2,3	Eighth Ave	Many people close and far away	0:32:20	510.1	
V006041,2,3	Skyscrapers left	Pan down & up, reflections, buildings	0:38:22	604.7	
V006051,2,3	Central Park jog	People	0:20:21	324.1	
V006061,2,3	Manhattan skyline	Trees, sky, buildings, high contrast	0:25:10	395.0	
V006071,2,3	Peking	Zoom in & out, reflections, high contrast, lines	0:41:14	646.3	
V006081,2,3	Times Square	Text, rotation, high detail	0:17:03	266.3	
V006091,2,3	Golden Gate	Sunset, high detail and large lower contrast areas	0:10:18	166.7	
V006101,2,3	Ducks	Reflections, animals, grass	0:22:24	357.1	
V006111,2,3	Horror show	Talking heads detail scene	0:28:21	448.5	
V006121,2,3	Water colours	Night-time neon reflections	0:12:15	196.0	
V006131,2,3	Night focus	Out-of-focus to in-focus	0:34:19	540.6	
V006141,2,3	Big Caddy	Zoom out; texture	0:18:15	289.3	
V006151,2,3	Fractal water	High detail, similar patterns	0:35:02	545.6	
V006161,2,3	Real Thing	Graphic images, text, bright colours	0:46:01	716.0	
V006171,2,3	Billboards	Text, pan/rotation	0:25:06	392.5	
V006181,2,3	Row your boat	Loose tracking pan	0:25:03	390.7	
V006191,2,3	Tree trunk	Natural, textured object	0:24:11	380.1	
Clip Number(s)	Title	Main purposes	Duration (mins :secs: frames)	D1 file size (MB)	Begin End

V006201,2,3	Joggers left	People & objects fast-crossing frame	0:37:13	583.5	
V006211,2,3	Tricycle	Traffic towards camera	0:15:17	243.9	
V006221,2,3	Mud flats	Low contrast monochromatic patterns	0:19:10	301.7	
V006231,2,3	Crowds	Many people close-up and crossing field of view	0:31:01	482.7	
V006241,2,3	Cheeky ape	Talking heads (animal)	0:19:01	296.1	
V006251,2,3	Tropical fish	Low contrast, high detail	0:10:08	160.5	
V006261,2,3	Wild ride	Hand-held camera (fast moving), colour tint, fast movement	0:23:13	365.8	
V006271,2,3	Mast close	Fine lines, a few colours only	0:37:03	577.3	
V006281,2,3	Statue	Graphic images, light background, pan up	0:29:00	451.0	
V006291,2,3	Autumn colours	Autumn trees, reflections, building	0:14:21	230.8	
V006301,2,3	Joggers side	People side view (passing camera quickly)	0:28:14	444.2	
V006311,2,3	Golden sunset	Sunset (high contrast), detail, pan right-left	0:33:01	513.8	
V006321,2,3	Fountain top	Random movement, low contrast foreground and background	0:30:09	472.2	
V006331,2,3	White bridge	Multiple objects moving in different directions	0:14:09	223.3	
V006341,2,3	NY scene	Rapid camera movement of street scene	0:19:05	298.6	
V006351,2,3	Skyscrapers right	Reflections, buildings, scroll/pan down-right-up	0:23:04	360.2	
V006361,2,3	Manhattan East	Trees, water, buildings, sky	0:12:21	199.7	
V006371,2,3	Rain forest	Light foreground rain in a forest (low contrast)	0:14:15	227.1	
V006381,2,3	Clouds	Clouds, slow moving	1:27:16	1,363.0	
V006391,2,3	Rigging	Pan right in high-detail image, with lines, reflections, moiré patterns	0:28:18	446.7	
V006401,2,3	NY traffic	Rotational view of traffic, towards & away from camera	0:16:03	250.7	