Summary

Tektronix

Vclips VC007A
Video Clips for Testing and Optimization of Video Compression

Encoder Series – VC007A, E-Asia

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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-007-A E-Asia

Encoder Test Series	VC-007-A E-Asia
Purpose	Test encoders with all variants of movement and lighting
Content	Scenes from Beijing, Tokyo and Seoul 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	52 scenes all provided at sizes: • D1 720x576 (numbered V007nn**1**) • CIF 352x288 (numbered V007nn**2**) • QCIF 176x144 (numbered V007nn**3**) i.e. total 156 clips
Total disk size	31.7 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, 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

52 video scenes are provided: each of these is provided at D1 (720x576), CIF (352x288) and QCIF (176x144) resolutions (that is 156 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.

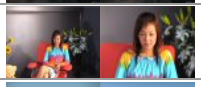
Once it has been run once, it associates files with an extension of .yuv
so that after this double-clicking on a file with this extension will automatically open the YUV file in the sequence viewer.

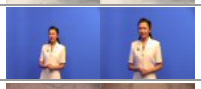
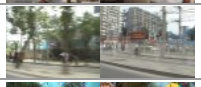
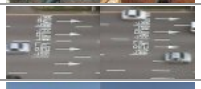
YUVSequenceViewer tries to work out the size of the video frames from the filename (if it is given in the filename): if there are no clues from the filename then the user must enter the size of the frames.

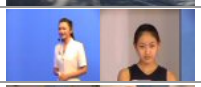
On the 'Tool' menu there is an option to subtract two YUV sequences, to look for differences between two files. A zero difference results in a constant grey image.
To make these differences more visible, select the menu 'View' then 'Options' then enter a number into the 'Subtraction scale' box: the larger 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
V007011,2,3	Shinagawa rush	Many people moving into/out of picture	0:13:21	215.2	
V007021,2,3	Megatop	Slow movement, filling frame, plus fast movement & text	0:49:06	765.8	
V007031,2,3	Great Wall steps	People, fine detail and large monochromatic area	0:10:24	170.4	
V007041,2,3	Seoul traffic	Fast movement left-right, white-out	0:29:05	454.1	
V007051,2,3	Beijing tourists	Crowd moving in different directions, global pan left	0:12:19	198.4	
V007061,2,3	Making jade	Low movement, fine detail, light colours	0:09:14	148.7	
V007071,2,3	Night pan zoom	Night-time, pan left, pan right and fast zooms, high contrasts	0:49:07	766.4	
V007081,2,3	Lady in red	Tracking global pan, fine detail low contrast background	0:48:09	752.1	
V007091,2,3	Ming statue	Slow zoom out, global camera shake, reflective highlights	0:12:15	196.0	
V007101,2,3	Lawnmower man	High contrast, fine detail, global tracking movement	0:16:18	260.0	
V007111,2,3	Rooftops	Fine detail, monochromatic areas	0:31:03	484.0	
V007121,2,3	Night pedestrians	Night-time, movement crossing lines, bright points	0:17:12	271.8	
V007131,2,3	Bored girls	Bright colours, monochromatic areas, person close-up	0:57:13	894.6	
V007141,2,3	Beijing appts	Global camera shake, fast zooms in/out, fine detail	0:10:02	156.8	
V007151,2,3	Cyclist	Fast movement, object tracking behind foreground movement	0:09:0	140.0	
V007161,2,3	Pink parasol	Tracking people (global pan), fine detail, global camera shake	0:37:23	589.7	
V007171,2,3	Forbidden City	Low contrast fine detail areas, pan left and right	0:38:12	598.4	
V007181,2,3	Korean plane	Slow movement, faster movement, text, low contrast	1:21:15	1,269.0	
V007191,2,3	Walk back	Fine detail, high contrast	0:22:01	342.8	
V007201,2,3	Archway zoom	Zoom in/out, bright colours, round shapes	0:20:23	325.3	

Clip Number(s)	Title	Main purposes	Duration (mins:secs :frames)	D1 file size (MB)	Begin ¦ End
V007211,2,3	Seoul traffic left	Low contrast, multiple object movement (traffic)	2:05:13	1,952.1	
V007221,2,3	Neon focus	Night time, in & out of focus, bright lights & dark areas	0:19:02	296.7	
V007231,2,3	Wild ride	Very fast horizontal movement in front of background, lines	0:41:03	639.5	
V007241,2,3	Ticket barriers	Many people near and far from camera, in & out of focus	0:22:21	355.2	
V007251,2,3	Tokyo skyscrapers	Lines, high contrast, reflections, pan up/down	0:27:16	429.9	
V007261,2,3	Inspection	Reflections, global camera movement, limited movement	0:20:03	312.9	
V007271,2,3	News girl	Talking head, high contrast, large blue-screen area	0:32:07	502.0	
V007281,2,3	Character scroll	Low contrast, lines, texture, pan up	0:18:24	294.9	
V007291,2,3	Driving rain	Global camera shake, fore-ground objects obscuring	0:20:20	323.5	
V007301,2,3	Clouds	Random shapes, two colour	0:25:06	392.5	
V007311,2,3	Masked woman	Tracking pan of person, low contrast fine detail background	0:32:0	497.7	
V007321,2,3	Seoul freeway	Lines moving rapidly towards camera, monochromatic areas	0:37:01	576.0	
V007331,2,3	Ming tomb	Fine detail, bright colours, white-out, rotation	0:10:22	169.2	
V007341,2,3	Map girl	Foreground/background people, detail patterns	0:27:21	433.0	
V007351,2,3	From car	Fast-moving foreground and background objects	0:30:01	467.2	
V007361,2,3	Beach girl	Talking head, bright colours, detail	0:20:18	322.2	
V007371,2,3	Road markings	Lines, text, vehicles moving left-to-right	0:30:03	468.4	
V007381,2,3	Wall walkers	People, movement, large monochromatic area	0:14:21	230.8	
V007391,2,3	Jumbo approach	Slow movement towards camera, high contrast	0:20:17	321.6	
V007401,2,3	High roads	Greyscale image, strong patterns, curves, lines	0:12:12	194.1	
V007411,2,3	Couple	People, tracking behind foreground objects	0:18:04	282.4	
V007421,2,3	Tiannenmen traffic	Traffic, detail background	0:10:10	161.7	

Clip Number(s)	Title	Main purposes	Duration (mins:secs : frames)	D1 file size (MB)	Begin ¦ End
V007431,2,3	Tricycle	Slow-moving background object behind fast-moving traffic	0:11:19	182.9	
V007441,2,3	Sporty girl	Zoom in/out of (non)talking head	0:14:05	220.8	
V007451,2,3	White beard	Person close-up, light image, fine detail, round shape	0:24:18	384.4	
V007461,2,3	Men sitting	Global shake, talking heads behind foreground movement	0:35:01	544.9	
V007471,2,3	People focus	People walking away/towards camera, in and out of focus	0:19:09	301.1	
V007481,2,3	Night traffic	Night-time, fast-moving traffic, lines, dark image	0:28:02	436.7	
V007491,2,3	Seoul traffic down	Low contrast, multiple object curved movement (traffic)	1:44:12	1,624.9	
V007501,2,3	Shopping	Camera jumps, detail background and text, movement	0:43:04	671.2	
V007511,2,3	Three hats	Tracking pan, high contrast, multiple moving people	0:23:19	369.5	
V007521,2,3	Evening rush	People walking away/towards camera, high contrast	1:02:02	965.5