

Summary



Vclips VC003A Video Clips for Testing and Optimization of Video Compression

Encoder Series – VC003A, E-City

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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-003-A E-City

Encoder Test Series	VC-003-A E-City
Purpose	Test 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	<p>55 scenes all provided at sizes:</p> <ul style="list-style-type: none"> • D1 704x576 (numbered V03nn1) • CIF 352x288 (numbered V03nn2) • QCIF 176x144 (numbered V03nn3) <p>i.e. total 165 clips</p>
Total disk size	19.8 GBytes
Video format	YUV 4:2:0 planar, 8 bits per pixel
How supplied	6 computer DVDs
Software supplied	YUV sequence viewer in folder: \Software on disk 1
Documentation	PDF of this manual in folder: \Documentation on disk 1

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 - 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. Description of Clip Set

55 video scenes are provided: each of these is provided at D1 (720x576), CIF (352x288) and QCIF (176x144) resolutions (that is 165 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;

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 704x576 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.)

3. Software supplied

The following software is supplied:

- YUV sequence viewer

3.1 YUV sequence viewer

This program is called: `YUVSequenceViewer.exe`
and is located on disk 1 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.








4. 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 (secs: frames)	D1 file size (MB)	Begin-End
V03001,2,3	Colour bars countdown	High contrast, rotating lines, scene change	11:22	181	
V03011,2,3	Canary wharf	Fine lines, zoom out	22:05	344	
V03021,2,3	Traffic	Movement in, out	1:07:15	1,054	
V03031,2,3	Cross traffic	Fast crossing movement, scene changes	45:06	705	
V03041,2,3	Piccadilly circus	Bright colours, crossing movement	14:20	228	
V03051,2,3	Bus junction	Bright colours, movement out, diagonal line	12:01	185	
V03061,2,3	Station bus	Zoom out	36:21	572	
V03071,2,3	Gold monument	Monochromatic area, high contrast	10:00	155	
V03081,2,3	Grenadier guards	Synchronised areas of movement	11:20	181	
V03091,2,3	Bridge scenes	Scene changes, water	27:05	417	
V03101,2,3	Train in station	Crossing diagonal movement	21:06	327	
V03111,2,3	Taxi view	Global motion within window	10:21	168	
V03121,2,3	Crowd	Multiple random movement, people	10:20	163	
V03131,2,3	Crowd close-up	Multiple random movement, people	18:18	288	
V03141,2,3	Stars stripes	Few persons, bright colours, detail	17:17	271	
V03151,2,3	Packet woman	Person, white areas	7:11	112	
V03161,2,3	Mobile man	Hand-held camera, face	9:21	151	
V03171,2,3	Man eating	Face, crossing in front	19:15	301	
V03181,2,3	Hands	Hands, limited movement	18:00	275	
V03191,2,3	Legs	Legs, random movement	30:00	460	
V03201,2,3	Fast zooms	Fast zooms in and out	23:20	366	
V03211,2,3	Neon night 1	High contrast, bright lights, mainly dark	15:07	232	
V03221,2,3	Neon night 2	High contrast, mainly bright, diagonal picture	12:10	189	

V03231,2,3	Neon night 3	High contrast, bright lights, bright to dark	14:21	228	
V03241,2,3	Bright night	Dark areas, water, detail	12:15	194	
V03251,2,3	Boat night	Dark areas, highlights, movement	22:08	340	
V03261,2,3	Leaves	Leaves, random movement	10:00	155	
V03271,2,3	Window car	Leaves reflection, high contrast	17:11	168	
V03281,2,3	Low bridge	Slow movement	11:09	172	
V03291,2,3	Airplane view	Global diagonal pan, low contrast	27:05	417	
V03301,2,3	Station	Vehicles in and out, crossing movement	28:00	434	
V03311,2,3	One man	Single person crossing diagonal	4:24	77	
V03321,2,3	Wheely car	Car out	3:09	52	
V03331,2,3	Cafe woman	Talking heads, crossing behind	30:01	469	
V03341,2,3	Cafe men	Talking heads	15:03	232	
V03351,2,3	Woman drinking	Talking heads	15:10	237	
V03361,2,3	Blue water	Water, bright colours, zoom out	30:01	469	
V03371,2,3	Muddy waters	Low contrast, monochromatic	20:00	310	
V03381,2,3	River boat	Water, highlights, crossing movement	11:20	181	
V03391,2,3	Harbour tug	Water, high contrast	13:18	211	
V03401,2,3	Sight-seeing boat	Global slow pan, water	41:02	628	
V03411,2,3	Bird flight	Fast pan, hand-held camera	7:20	120	
V03421,2,3	Bridge person	Slow pan, subject behind foreground	20:00	310	
V03431,2,3	Person track	Fast tracking pan	7:16	116	
V03441,2,3	Walking track	Slow tracking pan	15:04	232	
V03451,2,3	Wild moped	Fast pan, small subject, high detail, hand-held	9:19	151	
V03461,2,3	Luggage cart	Slow pan, movement in front / behind, low contrast	13:19	211	

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V03471,2,3	Cathedral 1	Slow pan down, monochromatic to high detail, contrast	14:19	224	
V03481,2,3	Cathedral 2	Slow pan up, high detail	21:15	331	
V03491,2,3	Diagonal lines	Low contrast lines, movement out	4:24	77	
V03501,2,3	Angled 1	Low contrast sky, small objects moving	9:23	151	
V03511,2,3	Angled 2	Scene tilt	12:00	185	
V03521,2,3	Angled entrance	Angled cross movement	23:06	357	
V03531,2,3	Rotate 1	Rotation left, high detail, monochromatic area	15:20	241	
V03541,2,3	Rotate 2	Rotation right, high detail, monochromatic area	6:17	103	