



T2V005 HighRes User Manual

Video Clips for
Testing and Optimisation of
Video Compression



www.testvid.com

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To find particular video clips that contain specific features/subjects that you wish to test for, it is recommended that you use the PDF version of this manual as this allows fast electronic searching for specific clip features using the "CF-words" (see section 5.2 for more information).

T2V005_HighRes User manual v1.0

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1. Overview of T2V005 HighRes

2-D / 3-D	2D
Compressed/ Uncompressed	Uncompressed
Description of video	Scenes from Europe (London, Barcelona, Bruges, Munich) and USA (New York, San Francisco, Las Vegas)
Purpose	Test an encoder to deal with High Resolution (up to 4K) and high bit depth video (up to 14-bits per sample), with all aspects of global and local motion, slow/medium/fast motion, with panning, scrolling, zooming, smooth and erratic, high/low contrast, with limited colours/vivid colours and many common subject types
Number of clips	136 individual video clips: 34 each at the following resolutions: <ul style="list-style-type: none">- High10 1920x1080p 10-bits per sample 4:2:2- High444 1920x1080p 14-bits per sample 4:4:4- 2K 2048x1152p 12-bits per sample 4:4:4- 4K 4096x2304p 12-bits per sample 4:4:4
Length of video	Total of over 52 minutes (over 13 minutes at each resolution)
Total size on disk	1,849 GBytes (1.849 TeraBytes)
Video format(s)	YUV planar; bits per sample as listed above
Audio format(s)	MPEG-1 Layer II stereo 384kbps CBR 16-bit 48kHz and WAV linear PCM uncompressed stereo 1536kbps 48kHz

2. Introduction

T2Vid and **T3Vid** are high definition (HD) video clips designed for testing video encoders and decoders.

The **T3Vid** clips are stereoscopic 3-dimensional (matched left and right images); the **T2Vid** clips are 2-D.

Both the **T2Vid** and **T3Vid** clips come in two variants: those designed to test and stress video encoders (usually in uncompressed YUV format, some of which have associated sound); and compressed video designed to test the range of options available in a standards-compliant video decoder (in compressed format such as MPEG-4/AVC/H.264 or MPEG-2, both as elementary streams and in 'wrappers' such as MPEG-2 Transport Stream).

2.1 T2Vids and T3Vids for testing encoders

Each set of clips for testing encoders contains a diverse selection of clips designed to stress a video encoder in different ways. Typically this includes different movement types, different subjects, different lighting conditions, different camera movement - designed to encompass the majority of different types of difficult-to-encode items. In some cases the quality of filming is marginal - deliberately so, as this is often the hardest to encode. The majority of the filming was done hand-held, as is quite often the case with documentary and even film currently. However, in all cases there has been no video editing as such (unless otherwise stated for a specific clip) - all the separate video clips are direct decodes from the HD camera files, with no re-compression/re-encoding done. Where video editing has been done the re-encode is only at the transitions - the vast majority of these clips are also as per the original camera files.

These clips are provided as sets of video clips, typically 30 - 50 in a set, lasting from 15 - 20 minutes total. These include:

- 'standard' HD of real-world subjects (1920x1080, 1280x720; e.g. in New York, San Francisco, London, Munich)
- as above but D-cinema resolutions (2K and 4K)
- as above but 'low' resolutions such as NTSC, D1 PAL, CIF, mobile, web, etc.
- synthetically generated, which has features such as precisely defined motion - ideal for checking such items as encoder motion estimation

The formats/resolutions provided vary from by clip set; as an example all the HD sets are provided at 1920x1080 progressive, 1920x1080 interlaced and 1280x720 progressive formats, in uncompressed YUV format, 16:9 aspect ratio.

All filming was done native HD.

Most clip sets are provided in 8 bits per sample; some are available at 10-bit or 14-bits per sample.

The **T2Vid** clips are straightforward 2-D clips; the **T3Vid** clips comprise matched left and right video images. The **T3Vid** clips have the 'extra dimension' of varying 3-D depth: from shallow to deep 3-D effect, into or out of the picture, with additional artefacts and difficulties that can be encountered in 3-D.

2.1.1 Audio

Sound is provided for almost all clips: in some cases this is sound recorded which is directly associated with the clips, in other cases the sound comprises appropriate background or music.

In a few cases the associated audio is one of the main reasons for recording the clip so both should be viewed together (where this is the case the notes state this for the specific clip in the manual).

2.1.2 Software

In addition to the video and audio, utility software to process the YUV video is provided as listed in section 4 and information on YUV viewers.

2.2 T2Vids and T3Vids for testing decoders

These are designed to test standards-compliant video decoders, by providing a series of video clips where the same video source material is encoded at different bit-rates with different encoder options.

Normally each clip is provided more than one format: typically MPEG-2 and MPEG-4/AVC/H.264 elementary video formats, at both 1920x1080 and 1280x720, as well as the source video in YUV format. In addition, each clip is typically encoded into one or more 'wrapper' formats such as MPEG-2 Transport Stream, with the associated audio in an appropriate format.

The associated audio is also provided as separate elementary files.

Full information on the currently available sets of [T2Vid](#) and [T3Vid](#) clips series is at www.testvid.com.

2.3 TestVid logo

The [TestVid](#) logo (or a variant of it) is usually placed in the lower left corner of the video. It is a condition of the license agreement for [TVids](#) that this logo is not removed or obscured.

The logo has been carefully sized and placed to coincide with the borders of a 16x16 macroblock (where this is possible) and is static throughout each sequence, in order to have minimal effect on encoders and decoders.

2.4 Safety

The [TVids](#) are almost invariably supplied on a USB hard drive unit. This unit may be mains powered or powered directly from the USB port.

In all cases it is imperative that you carefully read and understand the safety information provided with the unit.

2.5 Backup

As the [TVids](#) are almost invariably supplied on a USB hard drive unit it is highly recommended that you make an immediate backup of the whole unit, as hard drives can of course fail. (This backup copy is in addition to the 25 copies allowed by the license agreement.)

The warranty on the hard drive is 180 days, but if it does fail it would of course take some days at least to provide a replacement unit.

3. T2V005 HighRes Clip set description

3.1 Set content types

This set of video clips comprise a range of subjects, motion, colours, light levels designed to test and stress video encoders by providing a varied set of conditions:

- ❑ subject types such as people, traffic, buildings, sky, water, trees, text..
- ❑ movement types such as panning, zooming in/out, tracking, hand-held camera
- ❑ subject motion such as into, out of or across the picture, in front of and partially behind objects
- ❑ lighting conditions, from bright sunlight, dull daylight, shaded areas, indoors..
- ❑ varying camera properties such as depth of field, in/out-of-focus..
- ❑ hard to encode items such as reflections, fine lines, patterns, round objects..
- ❑ and with sound associated with some clips

In many cases the video is harder to encode than might normally be expected, as the lighting conditions are not ideal or there is significant camera movement, or the focus varies. These features are deliberately used as they often cause the most difficulty to video encoders and represent the worst case that the encoder should encounter in 'normal / real' use.

The total time of the individual clips is over 52 minutes (over 13 minutes in each of the formats).

3.2 Individual clips provided

136 YUV clips are provided, comprising 34 individual clips each at the following resolutions:

- | | | | | |
|------------|-----------|-------------|--------------------|-------|
| ❑ High10: | 1920x1080 | progressive | 10-bits per sample | 4:2:2 |
| ❑ High444: | 1920x1080 | progressive | 14-bits per sample | 4:4:4 |
| ❑ 2K: | 2048x1152 | progressive | 12-bits per sample | 4:4:4 |
| ❑ 4K: | 4096x2304 | progressive | 12-bits per sample | 4:4:4 |

Each of these clips are:

- ❑ planar YUV (i.e. a frame of Y followed by a frame of U followed by a frame of V)
- ❑ 16-bits (two bytes) used on disk per sample, little-endian with upper bits set to 0 (see section 3.4 below)
- ❑ progressive scan (not interlaced)
- ❑ square pixels
- ❑ no headers
- ❑ top picture row first
- ❑ Y planes are unsigned in the range of values as given in section 3.4 below
- ❑ U and V planes have values in the ranges as given in section 3.4 below

All of the clips were filmed at 25 frames per second, although the YUV may be re-played / encoded at any speed (such as 24 or 29.97 fps).

3.3 Generation of video from 1920x1080 8-bits per sample

The video was originally filmed at 1920x1080 resolution, at 8-bits per Y, U and V sample.

In order to generate the video supplied, the least significant bits of each Y, U, V sample were generated using a proprietary curve smoothing algorithm.

The scaling algorithm itself is virtually artefact-free, although scaling up video means that artefacts such as DCT ringing, macroblock edges and graininess can all become much more visible.

	Up-scale		Artefacts visible due to scaling?
	Y	U, V	
1920x1080	-	2 x	- n/a - (not scaled)
2048x1152	6.7%	2.1 x	Infrequently
4096x2304	2.1 x	4.2 x	Some visible on most clips (highly visible on some)

3.4 Format of video on disk

3.4.1 High10 (4:2:2 10-bit)

One sample of Y, U or V:

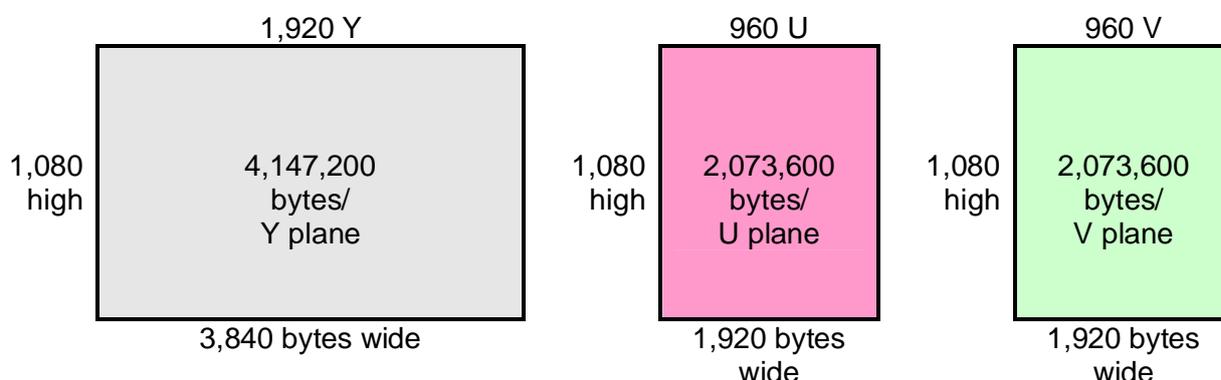
Memory address	Byte	0							1								
	Bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Video data	Byte	Least significant							Most significant								
	Bit	0	1	2	3	4	5	6	7	8	9	x	x	x	x	x	x

where 'x' = set to 0

Start of each line of Y, U or V

Memory address	Byte	0	1	2	3	4	5	6	7
Video data (10 bits)	Bit	0	x	1	x	2	x	3	x

One frame of Y, U and V comprises: plane of Y followed by plane of U followed by plane of V:



Valid video data ranges:

- Y: 64 - 940 [16-235 >> 2]
- U and V: 64 - 960 [16-240 >> 2]

3.4.2 High444 (4:4:4 14-bit)

One sample of Y, U or V:

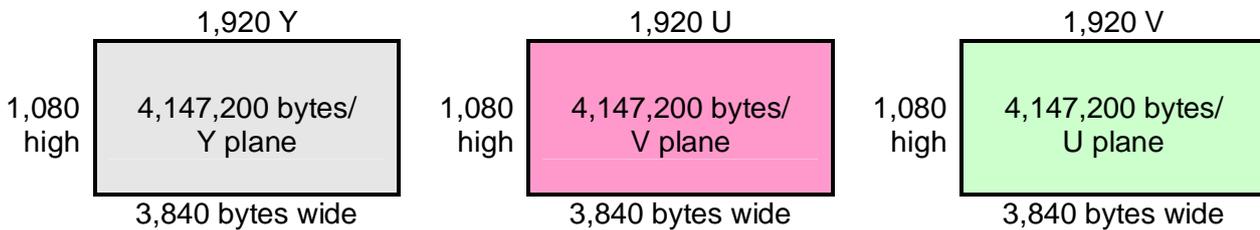
Memory address	Byte	0							1								
	Bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Video data	Byte	Least significant							Most significant								
	Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	x	x

where 'x' = set to 0

Start of each line of Y, U or V

Memory address	Byte	0	1	2	3	4	5	6	7
Video data (14 bits)	Bit	0	x	1	x	2	x	3	x

One frame of Y, U and V comprises: plane of Y followed by plane of U followed by plane of V:



Valid video data ranges:

- Y: 1,024 - 15,040 [16-235 >> 6]
- U and V: 1,024 - 15,360 [16-240 >> 6]

3.4.3 2K [4:4:4 12-bit]

One sample of Y, U or V:

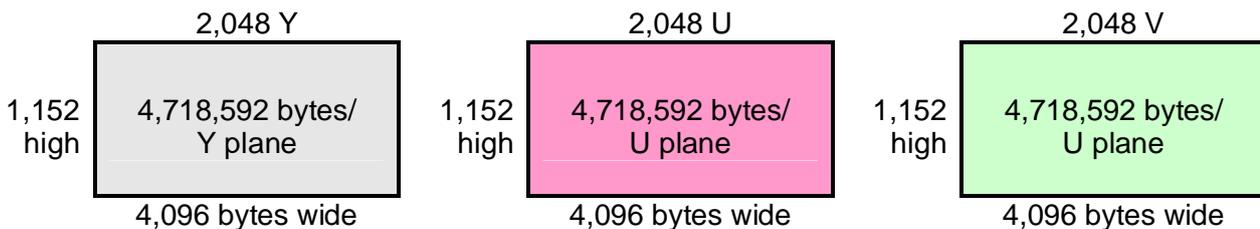
Memory address	Byte	0							1								
	Bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Video data	Byte	Least significant							Most significant								
	Bit	0	1	2	3	4	5	6	7	8	9	10	11	x	x	x	x

where 'x' = set to 0

Start of each line of Y, U or V

Memory address	Byte	0	1	2	3	4	5	6	7
Video data (14 bits)	Bit	0	x	1	x	2	x	3	x

One frame of Y, U and V comprises: plane of Y followed by plane of U followed by plane of V:



Valid video data ranges:

- Y: 256 - 3,760 [16-235 >> 4]

- U and V: 256 - 3,840 [16-240 >> 4]

3.4.4 4K [4:4:4 12-bit]

One sample of Y, U or V:

Memory address	Byte	0							1								
	Bit	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Video data	Byte	Least significant							Most significant								
	Bit	0	1	2	3	4	5	6	7	8	9	10	11	x	x	x	x

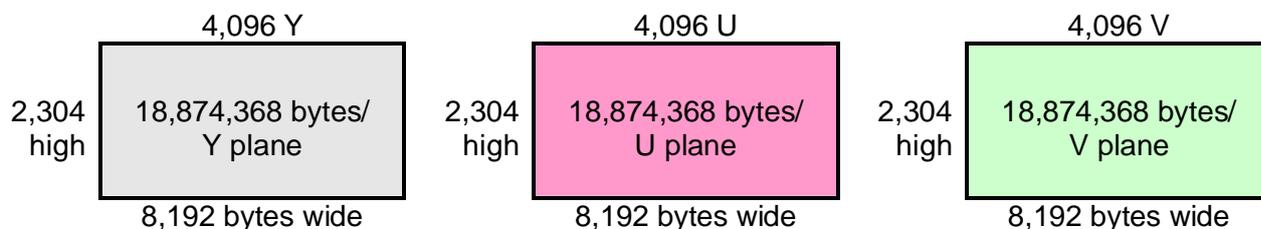
where 'x' = set to 0

Start of each line of Y, U or V

Memory address	Byte	0	1	2	3	4	5	6	7
Video data (14 bits)	Bit	0	x	1	x	2	x	3	x

One frame of Y, U and V:

Plane of Y followed by plane of U followed by plane of V



Valid video data ranges:

- Y: 256 - 3,760 [16-235 >> 4]
- U and V: 256 - 3,840 [16-240 >> 4]

3.5 Audio

Audio clips are provided for every video clip, matching the video length. In the vast majority of cases this was the actual audio recorded with the video.

Where the audio provided was not recorded with the video, similar/appropriate audio is provided, matched in time-length. This is denoted by `'_sim_'` in the audio filename (instead of `'_act_'`, denoting actual audio recorded at the time).

Clearly the main point of the **Tvids** is video testing, so the audio supplied is intended to be used to check timing/correlation during the encode process rather than to be particularly useful as standalone audio. Consequently, this audio has not been cleaned up or normalised and nor was much time spent in ensuring good audio recording during filming.

All the audio clips are provided in two formats:

- MPEG-1 Layer II stereo 384kbps CBR 16-bit 48kHz and
- WAV linear PCM uncompressed stereo 1536kbps 16-bit 48kHz

4. Software to view & process YUV video

4.1 Viewing the YUV video

There are a number of software programs for viewing YUV files: a current list is maintained on the **TestVid** website under Support at:

<http://www.testvid.com/yuvviewers.html>

Links are provided to the pages where the YUV viewers can be downloaded.

TestVid accepts no responsibility or liability for download or use of any of the programs listed; the user should carefully examine the license agreement that applies to the software concerned.

4.2 Software tools provided

The following software is provided:

Software tool	Purpose
yuvcropsizehr	Utility program to reduce size of video by removing lines from the top and/or columns from the right of each video frame
yuvmake1088hr	Utility program to add a total of 8 lines to of each video frame of 1920x1080 video, to make 1088 vertical size

Note

1. The software tools are provided solely for the use of the purchaser of the license to use this set of video clips and may not be used with other video or provided to other persons/organisations.
2. The use of these software tools is only on the basis of complete acceptance of the license agreement as given in section below. The fact of using these software tools gives your explicit consent to abide by the terms of the license agreement.

4.2.1 License agreement relating to the software tools provided

This license agreement below applies to all software listed in this section 4.2.

The software program(s) is/are provided to the user without any license fee or royalty on an "as is" basis, solely as an incidental part of the clip set and do not form part of the contract.

TestVid disclaims any and all warranties, whether express, implied, or statutory, including any implied warranties or merchantability or of fitness for a particular purpose.

The user makes use of this/these program(s) at their own risk. In no event shall **TestVid** be liable for any incidental, punitive, or consequential damages of any kind whatsoever arising from the use of this/these program(s).

This disclaimer of warranty extends to the user of this/these program(s) and user's customers, employees, agents, transferees, successors and assigns.

4.2.2 yuvcropsizehr

This is a command line program for reducing the size of any of the provided video by removing lines from the top and/or columns from the right of each video frame.

Usage:

```
yuvcropsizehr <filename.yuv> <fmt> <xsize> <ysize> <xcrop> <ycrop> <nnn>
```

where

- ❑ <filename.yuv> is the input filename (must have extension .yuv)
- ❑ <fmt> = format of input file, set to 'p210' [4:2:2 10-bits per sample] or 'p412' [4:4:4 12-bits per sample] or 'p414' [4:4:4 14-bits per sample]
- ❑ <xsize> = horizontal resolution of the input file (1920 / 2048 / 4096)
- ❑ <ysize> = vertical resolution of frame of the input file (1080 / 1152 / 2304)
- ❑ <xcrop> = number of columns to crop from the right-hand side of each frame. Limitations: this must a multiple of 2 (yuvcropsizehr will round up if this is not the case); the remaining number of columns in a frame cannot be less than 1920 (yuvcropsizehr will make the horizontal size 1920 if this is not the case).
- ❑ <ycrop> = number of lines to crop from the top of each frame. Limitations: this must a multiple of 2 for progressive input files and multiple of 4 for interlace input files (yuvcropsizehr will round up if this is not the case); the remaining number of lines in a frame cannot be less than 1080 (yuvcropsizehr will make the horizontal size 1080 if this is not the case).
- ❑ <nnn> = number of video frames to process. Set to 0 to process all frames. If <nnn> is greater than the number of frames then all frames will be processed

The filename for the output file, with the lines/columns removed, will be

```
inputfile_CROP_<newx>x<newy>.yuv
```

where <newx> and <newy> are the new horizontal and vertical dimensions of the cropped file (the '_CROP_<newx>x<newy>' is added by yuvcropsizehr).

The output file is put in the same folder as the input file.

4.2.3 yuvmake1088hr

This is a command line program for adding 8 additional lines to 1920x1080 vertical resolution video, to make it 1088 vertically i.e. an integer multiple of 16.

All the lines added are greyscale, set to one grey colour.

Usage:

```
yuvmake1088hr <filename.yuv> <fmt> <n> <c>
```

where

- ❑ <filename.yuv> is the input filename which is 1080 lines vertically (must have extension .yuv)
- ❑ <fmt> = format of input file, set to 'p210' [4:2:2 10-bits per sample] or 'p412' [4:4:4 12-bits per sample] or 'p414' [4:4:4 14-bits per sample]

- `<n>` = the number of the 8 lines to add at the top of each frame (0, 2, 3, 6 or 8). '0' means add zero lines at the top i.e. at 8 lines at the bottom; '8' means add 8 lines at the top and zero at the bottom; '4' means add 4 at top and bottom, etc.
- `<c>` = greyscale colour to add, number 16-235. 16=black; 235=white. Numbers less than 16 will be set to 16; greater than 235 will be set to 235. Note that this value is scaled up: x4 for p210; x16 for p412 and x64 for p414

The filename for the output file, with the extra 8 lines added, will be

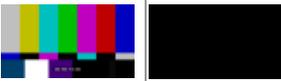
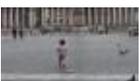
`inputfile_1088.yuv` (the '_1088' is added by `yuvmake1088hr`)

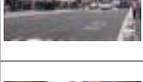
The output file is put in the same folder as the input file.

5. List of clips

5.1 Clips summary

□ Total time of clips at each resolution (at 25 fps): **13 mins 08 secs 08 frames**

Clip number(s)	Title	Main purposes	Duration (mins:secs:frames) at 25fps	Begin	End
T2V005001, T2V005101, T2V005201	Bars_countdown	Monitor set up; text	00:20:00		
T2V005002, T2V005102, T2V005202	Big_Ben	Rapid motion tracking and linear detail patterns with bright colours and large monochromatic areas	00:17:13		
T2V005003, T2V005103, T2V005203	Red_leaves	Shallow focus on detailed natural patterns and irregular global motion	00:20:01		
T2V005004, T2V005104, T2V005204	Angled_ride	Fast global motion	00:29:00		
T2V005005, T2V005105, T2V005205	Neon_tunnel	Medium speed leftwards global motion with rapid irregular motion and bright changing colours	00:32:20		
T2V005006, T2V005106, T2V005206	Pidgeon_bully	Compression of fur-like detailed features with shallow focus	00:39:21		
T2V005007, T2V005107, T2V005207	Red_white_crane	Rapid global and macroblock motion vector tracking behind objects	00:22:04		
T2V005008, T2V005108, T2V005208	Raindrops	Irregular random objects (raindrops) with patterns and fine detail	00:32:07		
T2V005009, T2V005109, T2V005209	Beer_festival	High contrast early evening images with some very bright and some dark grainy images with people	00:31:15		
T2V005010, T2V005110, T2V005210	Little_girl	Random but relatively slow global motion with zoom in and tracking person with people obscuring view	00:25:21		
T2V005011, T2V005111, T2V005211	Bike_woman	Medium speed tracking of motion vectors with frequently obscured subject and opposite direction global motion in highly patterned image	00:32:11		

T2V005012, T2V005112, T2V005212	Globes	Slow global zoom out with round objects and rapidly changing focus	00:18:16		
T2V005013, T2V005113, T2V005213	Nelsons_monument	Slow global scroll down with irregular shapes and patterns and irregular small global movement	00:25:19		
T2V005014, T2V005114, T2V005214	Clock_tower	Macroblock motion vectors of identical mirrored areas with detail but monochromatic background	00:10:17		
T2V005015, T2V005115, T2V005215	Vatican_traffic	Complex scene with multiple objects for motion vector tracking, with scene jump	00:21:17		
T2V005016, T2V005116, T2V005216	Smiling	Compression of faces, some in and some out of focus	00:19:17		
T2V005017, T2V005117, T2V005217	Empire_State	Global motion scrolling up with fine lines, patterns and angles	00:32:02		
T2V005018, T2V005118, T2V005218	Checked_caps	Motion vectors of multiple people moving semi-randomly with some obscuration and out-of-focus	00:21:19		
T2V005019, T2V005119, T2V005219	Eyewitness_news	Compression of rapidly moving text	00:13:06		
T2V005020, T2V005120, T2V005220	Please_tell	Compression of screen dots/potentially moiré fringing	00:36:16		
T2V005021, T2V005121, T2V005221	Traffic_twds	Motion vectors of multiple objects growing larger	00:12:16		
T2V005022, T2V005122, T2V005222	Blue_coat	Efficiency of talking heads compression with movement and increasing size	00:24:13		
T2V005023, T2V005123, T2V005223	Pan_left	Tracking of large object filling image then across detailed scene including text then tracking multiple objects (people)	00:31:23		
T2V005024, T2V005124, T2V005224	Washington_Circle	Circular global motion of high contrast but largely monochromatic objects with patterns	00:18:16		
T2V005025, T2V005125, T2V005225	Evening_cabs	Night-time scene with many reflective objects mainly getting smaller	00:21:18		

T2V005026, T2V005126, T2V005226	Football_game	Motion vectors of objects (people) moving in random directions with pattern and detail (grass) behind	00:16:24	
T2V005027, T2V005127, T2V005227	Dizzy_dragons	Compression of large high contrast rapidly moving areas (mainly monochromatic), with frequent obscuration	00:30:23	
T2V005028, T2V005128, T2V005228	Close up carousel	Fast macroblock motion vectors with obscured objects	00:15:11	
T2V005029, T2V005129, T2V005229	Seagull	Slow global motion and macroblock tracking with highly reflective background	00:21:07	
T2V005030, T2V005130, T2V005230	Cable car turn	High contrast with tracking of large macroblock areas	00:25:00	
T2V005031, T2V005131, T2V005231	Blue boarding	Very rapid pan left with high contrast areas	00:07:01	
T2V005032, T2V005132, T2V005232	SF silhouette	Slow global zoom with high contrast and over-bright highlights	00:36:02	
T2V005033, T2V005133, T2V005233	Moneyrail	High contrast bright colours and reflections with text, with slow global motion and large area macroblock motion	00:25:01	
T2V005034, T2V005134, T2V005234	Chandelier reflections	Macroblock motion vector nightmare (very hard to correlate correct macroblocks)	00:17:11	

5.2 List of 'CF' ('clip features') words used

The PDF of the user manual may be searched to find clips that match the given CF-words ('CF'= Clip Feature).

CF-bright_sunlight	CF-bright_daylight	CF-dull_daylight
CF-indoors_bright	CF-sunrise_sunset	CF-twilight
CF-night	CF-indoors_dark	CF-shaded
CF-light_picture	CF-dark_areas	CF-brightness_change
CF-high_contrast	CF-low_contrast	CF-black_background
CF-bright_colours	CF-dull_colours	CF-highlights
CF-large_monochromatic	CF-monochromatic	CF-white_background
CF-scene_change	CF-transition	CF- subjects_behind_foreground
CF-movement_in	CF-movement_out	CF-movement_across
CF-rapid_movement	CF-random_movement	CF-low_movement
CF-movement_up/down	CF-diagonal_movement	CF-coordinated_movement
CF-hand_held	CF-angled	
CF-zoom_in	CF-zoom_out	
CF-panning	CF-scroll	CF-from_above
CF-tracking	CF-tracking_following	
CF-out_of_focus		
CF-people	CF-faces	CF-crowd
CF-talking_head	CF-round	CF-vehicles
CF-text	CF-buildings	CF-leaves
CF-water	CF-reflections	CF-trees
CF-patterns	CF-fine_details	CF-lines
CF-moire	CF-clouds	
CF-sky		
CF-complex_scene	CF-graininess	CF-animals
CF-banding	CF-speeded_up	
CF-sound_talking		

6. Detailed information on individual clips

The following pages provide detailed information on the clips in this set.

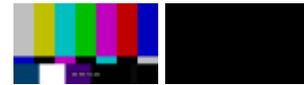
6.1 Detailed description of each clip

This section contains detailed descriptions of each video clip, and the associated audio.

70 features are listed for each clip: the purpose of providing these descriptions is to make it easier to select specific clips for specific features.

Therefore even if a characteristic does occur in a particular clip, this is not necessarily listed where it is not a prominent feature and/or where it is believed that the clip would not be selected for this particular feature.

Clearly to some extent these descriptions and selections are subjective, and the user is likely to come to their own conclusions as to which are most relevant to their particular codec / situation: the descriptions provided are intended to be an appropriate starting point.

Bars_countdown

GN.01	Filenames	T2V005001_Bars_countdown_1920x1080_p210.yuv T2V005101_Bars_countdown_1920x1080_p414.yuv T2V005201_Bars_countdown_2048x1152_p412.yuv T2V005301_Bars_countdown_4096x2304_p412.yuv
GN.02	Horizontal x vertical size(s)	1920x1080 : 1920x1080 : 2048x1152 : 4096x2304
GN.03	Progressive / Interlaced	Progressive
GN.04	Video format	YUV planar 4:2:2, 4:4:4, 4:4:4, 4:4:4
GN.05	Bits per sample	10 : 14 : 12 : 12 (for each of Y, U, V)
GN.06	Video description	HD colour bars and countdown with title slate, black segment and audio tone & pips
GN.07	Principal purposes	Monitor set up; text
GN.08	Duration (mins:secs:frames) at 25 fps *	00:20:00
GN.09	No. of frames	500
GN.10	Original video format	1080p25
GN.11	File size(s) on disk (MB)	4,147 : 6,221 : 7,078 : 28,312
GN.12	CF words	CF-text, CF-dark_picture, CF-patterns, CF-black_background, CF-round_objects, CF-transitions, CF-large_monochromatic
GN.13	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate 16bit uncompressed 48kHz stereo WAV
GN.14	Associated audio filenames	T2a005x01_Bars_countdown_act_MP1LII.mpa T2a005y01_Bars_countdown_act_unc.wav
GN.15	Associated audio description	1kHz audio tone and pips on countdown
GN.16	Audio duration	Same as video (video played at 25fps)

Clip features	Details	LC.11	Large brightness change	Some	
LIGHT CONDITIONS		SCENE SUBJECTS			
LC.01	Bright sunlight	-	SS.01	People	-
LC.02	Bright daylight	-	SS.02	Faces	-
LC.03	Dull daylight	-	SS.03	Vehicles	-
LC.04	Shaded areas	-	SS.04	Buildings	-
LC.05	Indoors bright	-	SS.05	Trees	-
LC.06	Indoors dark	-	SS.06	Text	Some
LC.07	Twilight	-	SS.07	Talking head	-
LC.08	Sunrise/sunset	-	SS.08	Water	-
LC.09	Night	-	SS.09	Leaves/grass	-
LC.10	Backlighting	-	SS.10	Sky	-

SS.11	Clouds	-
SS.12	Patterns	Some
SS.13	Round objects	Some

SCENE PROPERTIES

SP.01	Depth of field	-
SP.02	Out-of-focus	-
SP.03	Fine lines / moiré patterns	-
SP.04	Reflections	-
SP.05	Scene change	4
SP.06	Fades	-
SP.07	Transitions	4
SP.08	Slow/fast motion	-

COLOURS & CONTRAST

CC.01	Light picture	Most
CC.02	Dark picture	Black
CC.03	Bright colours	Some
CC.04	Dull colours	-
CC.05	Fine detail/moiré patterns	-
CC.06	High contrast areas	Some
CC.07	Large monochromatic areas	Some
CC.08	Graininess	-
CC.09	Black background	2 seconds
CC.10	White background	-

GLOBAL MOTION

GM.01	Fast track/pan	-
GM.02	Tracking in/out	-
GM.03	Tracking	-
GM.04	Panning	-
GM.05	Tracking (following)	-
GM.06	Fast scroll	-
GM.07	Scroll	-
GM.08	Angled	-
GM.09	Zoom in	-
GM.10	Zoom out	-
GM.11	Hand-held camera	-

SUBJECT MOTION

SM.01	Movement out of picture	-
-------	-------------------------	---

SM.02	Movement into picture	-
SM.03	Movement across picture	-
SM.04	Movement up/down	-
SM.05	Diagonal movement	-
SM.06	Subjects behind foreground objects	-
SM.07	Low movement	Yes

SOUND CONTENT

SC.01	Talking	-
SC.02	Movement	-
SC.03	Vehicles	-
SC.04	Wind	-
SC.05	Music	-
SC.06	Background	-
SC.07	Other	1kHz tone

SOUND CHARACTERISTICS

SH.01	Mono/ stereo	Stereo
SH.02	Average volume	Mid
SH.03	Level changes	-
SH.04	Clear/ distorted	-

Big_Ben



GN.01	Filenames	T2V005002_Big_Ben_1920x1080_p210.yuv T2V005102_Big_Ben_1920x1080_p414.yuv T2V005202_Big_Ben_2048x1152_p412.yuv T2V005302_Big_Ben_4096x2304_p412.yuv
GN.02	Horizontal x vertical size(s)	1920x1080 : 1920x1080 : 2048x1152 : 4096x2304
GN.03	Progressive / Interlaced	Progressive
GN.04	Video format	YUV planar 4:2:2, 4:4:4, 4:4:4, 4:4:4
GN.05	Bits per sample	10 : 14 : 12 : 12 (for each of Y, U, V)
GN.06	Video description	Looking up at London bus passing in front of Big Ben NOTE: colour artefact due to camera fault in blue sky at top, approx. 32-34 lines (68 lines in 4K video)
GN.07	Principal purposes	Rapid motion tracking and linear detail patterns with bright colours and large monochromatic areas
GN.08	Duration (mins:secs:frames) at 25 fps *	00:17:13
GN.09	No. of frames	438
GN.10	Original video format	1080p25
GN.11	File size(s) on disk (MB)	3,633 : 5,449 : 6,200 : 24,801
GN.12	CF words	CF-bright_daylight, CF-buildings, CF-fine_details, CF-large_monochromatic, CF-monochromatic, CF-movement_across, CF-round, CF-scroll, CF-sky, CF-subjects_behind_foreground, CF-vehicles
GN.13	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate 16bit uncompressed 48kHz stereo WAV
GN.14	Associated audio filenames	T2a005x02_Big_Ben_act_MP1LII.mpa T2a005y02_Big_Ben_act_unc.wav
GN.15	Associated audio description	Actual audio recorded with video
GN.16	Audio duration	Same as video (video played at 25fps)

Clip features	Details	LC.08	Sunrise/sunset	-
LIGHT CONDITIONS				
LC.01	Bright sunlight	-	LC.09	Night -
LC.02	Bright daylight	All	LC.10	Backlighting -
LC.03	Dull daylight	-	LC.11	Large brightness change -
LC.04	Shaded areas	-	SCENE SUBJECTS	
LC.05	Indoors bright	-	SS.01	People -
LC.06	Indoors dark	-	SS.02	Faces -
LC.07	Twilight	-	SS.03	Vehicles Buses
			SS.04	Buildings One

SS.05	Trees	-
SS.06	Text	-
SS.07	Talking head	-
SS.08	Water	-
SS.09	Leaves/grass	-
SS.10	Sky	Monochromatic blue
SS.11	Clouds	-
SS.12	Patterns	Many
SS.13	Round objects	Few

SCENE PROPERTIES

SP.01	Depth of field	Deep
SP.02	Out-of-focus	-
SP.03	Fine lines / moiré patterns	-
SP.04	Reflections	-
SP.05	Scene change	-
SP.06	Fades	-
SP.07	Transitions	-
SP.08	Slow/fast motion	-

COLOURS & CONTRAST

CC.01	Light picture	-
CC.02	Dark picture	-
CC.03	Bright colours	-
CC.04	Dull colours	-
CC.05	Fine detail/moiré patterns	-
CC.06	High contrast areas	-
CC.07	Large monochromatic areas	One (sky)
CC.08	Graininess	-
CC.09	Black background	-
CC.10	White background	-

GLOBAL MOTION

GM.01	Fast track/pan	-
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GM.02	Tracking in/out	-
GM.03	Tracking	-
GM.04	Panning	-
GM.05	Tracking (following)	-
GM.06	Fast scroll	-
GM.07	Scroll	Slow Up
GM.08	Angled	-
GM.09	Zoom in	-
GM.10	Zoom out	Once, fast
GM.11	Hand-held camera	-

SUBJECT MOTION

SM.01	Movement out of picture	-
SM.02	Movement into picture	-
SM.03	Movement across picture	Lots, fast
SM.04	Movement up/down	-
SM.05	Diagonal movement	-
SM.06	Subjects behind foreground objects	-
SM.07	Low movement	-

SOUND CONTENT

SC.01	Talking	-
SC.02	Movement	-
SC.03	Vehicles	Traffic
SC.04	Wind	-
SC.05	Music	-
SC.06	Background	-
SC.07	Other	-

SOUND CHARACTERISTICS

SH.01	Mono/ stereo	Stereo
SH.02	Average volume	Loud
SH.03	Level changes	-
SH.04	Clear/ distorted	-

Red_leaves

GN.01	Filenames	T2V005003_Red_leaves_1920x1080_p210.yuv T2V005103_Red_leaves_1920x1080_p414.yuv T2V005203_Red_leaves_2048x1152_p412.yuv T2V005303_Red_leaves_4096x2304_p412.yuv
GN.02	Horizontal x vertical size(s)	1920x1080 : 1920x1080 : 2048x1152 : 4096x2304
GN.03	Progressive / Interlaced	Progressive
GN.04	Video format	YUV planar 4:2:2, 4:4:4, 4:4:4, 4:4:4
GN.05	Bits per sample	10 : 14 : 12 : 12 (for each of Y, U, V)
GN.06	Video description	Close-up of bright red autumn leaves
GN.07	Principal purposes	Shallow focus on detailed natural patterns and irregular global motion
GN.08	Duration (mins:secs:frames) at 25 fps *	00:20:01
GN.09	No. of frames	501
GN.10	Original video format	1080p25
GN.11	File size(s) on disk (MB)	4,155 : 6,233 : 7,092 : 28,368
GN.12	CF words	CF-bright_colours, CF-bright_daylight, CF-complex_scene, CF-fine_details, CF-leaves, CF-movement_up/down, CF-out_of_focus, CF-water
GN.13	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate 16bit uncompressed 48kHz stereo WAV
GN.14	Associated audio filenames	T2a005x03_Red_leaves_act_MP1LII.mpa T2a005y03_Red_leaves_act_unc.wav
GN.15	Associated audio description	Actual audio recorded with video
GN.16	Audio duration	Same as video (video played at 25fps)

Clip features	Details	LC.10	Backlighting	-
LIGHT CONDITIONS				
LC.01	Bright sunlight	-	LC.11	Large brightness change -
LC.02	Bright daylight	All	SCENE SUBJECTS	
LC.03	Dull daylight	-	SS.01	People -
LC.04	Shaded areas	-	SS.02	Faces -
LC.05	Indoors bright	-	SS.03	Vehicles -
LC.06	Indoors dark	-	SS.04	Buildings -
LC.07	Twilight	-	SS.05	Trees -
LC.08	Sunrise/sunset	-	SS.06	Text -
LC.09	Night	-	SS.07	Talking head -
			SS.08	Water Some

SS.09	Leaves/grass	Lots	GM.05	Tracking (following)	-
SS.10	Sky	-	GM.06	Fast scroll	-
SS.11	Clouds	-	GM.07	Scroll	Up
SS.12	Patterns	-	GM.08	Angled	-
SS.13	Round objects	-	GM.09	Zoom in	-
SCENE PROPERTIES			GM.10	Zoom out	-
SP.01	Depth of field	Shallow	GM.11	Hand-held camera	-
SP.02	Out-of-focus	Background	SUBJECT MOTION		
SP.03	Fine lines / moiré patterns	-	SM.01	Movement out of picture	-
SP.04	Reflections	-	SM.02	Movement into picture	-
SP.05	Scene change	-	SM.03	Movement across picture	-
SP.06	Fades	-	SM.04	Movement up/down	Lots, fast
SP.07	Transitions	-	SM.05	Diagonal movement	-
SP.08	Slow/fast motion	-	SM.06	Subjects behind foreground objects	-
COLOURS & CONTRAST			SM.07	Low movement	-
CC.01	Light picture	-	SOUND CONTENT		
CC.02	Dark picture	-	SC.01	Talking	-
CC.03	Bright colours	Areas	SC.02	Movement	-
CC.04	Dull colours	-	SC.03	Vehicles	-
CC.05	Fine detail/moiré patterns	-	SC.04	Wind	-
CC.06	High contrast areas	-	SC.05	Music	-
CC.07	Large monochromatic areas	-	SC.06	Background	-
CC.08	Graininess	-	SC.07	Other	Water
CC.09	Black background	-	SOUND CHARACTERISTICS		
CC.10	White background	-	SH.01	Mono/ stereo	Stereo
GLOBAL MOTION			SH.02	Average volume	Mid
GM.01	Fast track/pan	-	SH.03	Level changes	-
GM.02	Tracking in/out	-	SH.04	Clear/ distorted	-
GM.03	Tracking	-			
GM.04	Panning	Slow left/right			