Contents

1. Overview of T2V003 Europe

2-D / 3-D	2D
Compressed/ Uncompressed	Uncompressed
Description of video	Scenes from London, Barcelona, Bruges, Rome, Munich
Purpose	Test an encoder to deal with HD video, 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	201 individual video clips (67 each at 1080p, 720p and 1080i resolutions)
Length of video	Total of over 2 hours 15 minutes (over 45 minutes each at 1080p, 720p and 1080i resolutions)
Total size on disk	502 GBytes
Video format(s)	YUV 4:2:0 planar 8 bits per sample:

YUV 4:2:0 planar 8 bits per sample:

- 1920x1080 progressive   [original filming size, at 25 fps]
- 1280x720 progressive
- 1920x1080 interlaced, bottom field first

Audio format(s)	MPEG-1 Layer II stereo 384kbps CBR 16-bit 48kHz and
	WAV linear PCM uncompressed stereo 1536kbps 48kHz

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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. T2V003 Europe 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 2 hours 15 minutes (over 45 minutes in each of the formats).

3.2 Individual clips provided

201 YUV clips are provided, comprising 67 individual clips each at the following resolutions:

- 1920x1080 progressive   [original filming size]
- 1280x720 progressive: this has been generated by downsizing from 1920x1080 using a proprietary scaling algorithm (superior to bicubic interpolation)
- 1920x1080 interlaced (see sections 3.2.1 and 3.3.3), comprising alternate fields with each field at 1920x540 resolution, bottom field first

Each of these clips are:

- planar YUV 4:2:0 (i.e. a frame of Y followed by a frame of U followed by a frame of V, where the U and V are both are half the resolution of the Y plane, both horizontally and vertically)
- 8-bits (one byte) per sample
- square pixels
- 16:9 picture aspect ratio
- no headers
- top picture row first
- Y planes are unsigned nominally 16-235 but may go 0-255
- U and V planes are centred at 128 and are nominally 16-240 but may go from 0-255

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).

3.2.1 Generation of interlaced video

All the clips were originally filmed progressive. In order to generate the correct fields representing the video data at the time between the progressive fields, in-house software has been used. Normally this has been done by calculating pixel-by-pixel motion vectors from one frame to the next in order to generate the intermediate time frame. For the many of the clips this process works well: sometimes it does not due to excessive movement or other factors.

Where there are minor artefacts in the generated frames of the video these are noted in box GN.12 of the clip description (in order to ensure that these are not interpreted as encoder errors).

For video clips where the motion vector calculations produce a large number of artefacts, the intermediate fields have been generated by blending the preceding and following frames together. Where this is the case the 1920x1080i clip has been denoted below with 'Frame blend' in box GN.12.

All the generated interlaced clips are one frame shorter than the progressive clips upon which they are based (this is a by-product of the generation process).
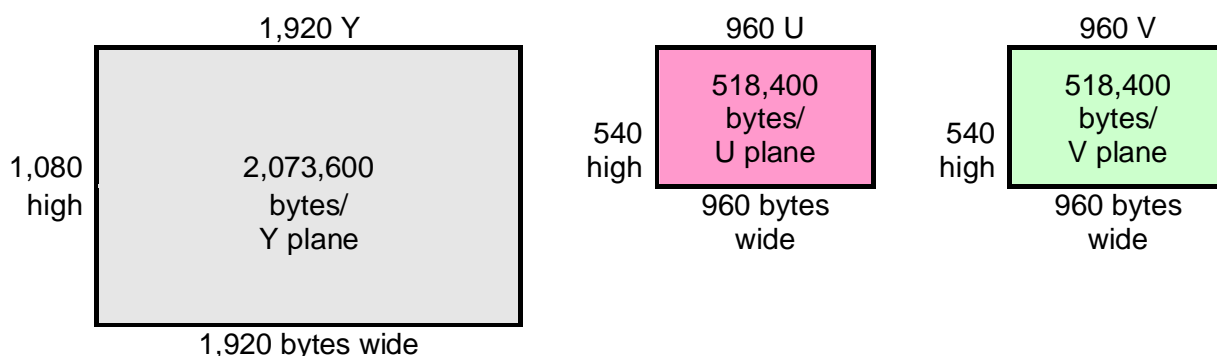
3.3 Format of video on disk

All the YUV video is stored in planar form, i.e. a plane of Y followed by a plane of U followed by a plane of V.

3.3.1 1080p

Byte 0 in the file is the Y data of the pixel at top left of the first frame.

One frame of Y, U and V:

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

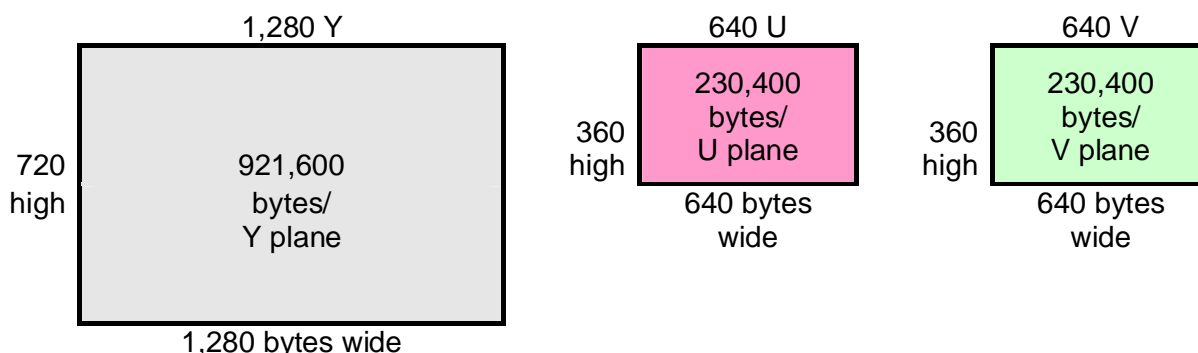|	1,920 Y	960 U	960 V
1,080 high	2,073,600 bytes/ Y plane	518,400 bytes/ U plane (540 high)	518,400 bytes/ V plane (540 high)
	1,920 bytes wide	960 bytes wide	960 bytes wide

Valid video data ranges:

- Y: 16 - 235
- U and V: 16 - 240

3.3.2 720p

Byte 0 in the file is the Y data of the pixel at top left of the first frame.

One frame of Y, U and V:

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

	1,280 Y			640 U		640 V

720
high

921,600
bytes/
Y plane

1,280 bytes wide

360
high

230,400
bytes/
U plane

640 bytes
wide

360
high

230,400
bytes/
V plane

640 bytes
wide

Valid video data ranges:

- ❑   Y: 16 - 235
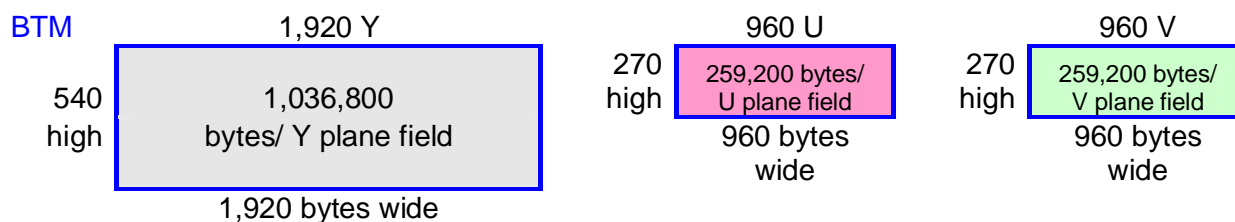- ❑   U and V: 16 - 240

3.3.3   1080i

Byte 0 in the file is the Y data of the pixel at top left of the first frame.

Note: as supplied, the 1080i video is stored on disk with alternating fields of YUV, bottom field first. If the 1080i video is required in frame format, with the alternating fields on alternating lines, the supplied utility program `yuvfieldcombine` can be used to combine the fields. See sections 3.2.1 and 4.2.3 for more information.
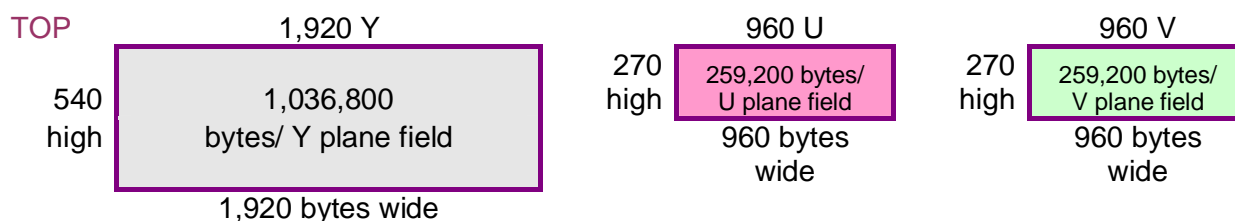
Each frame of Y, U and V is divided into alternating fields, bottom field first, with the YUV data as follows (each field being half the height of the frame):

BTM field			TOP field		
Y data BTM field	U data BTM field	V data BTM field	Y data BTM field	U data BTM field	V data BTM field

For each field: plane of Y followed by plane of U followed by plane of V

BTM   1,920 Y   960 U   960 V

540
high

1,036,800
bytes/ Y plane field

1,920 bytes wide

270
high

259,200 bytes/
U plane field

960 bytes
wide

270
high

259,200 bytes/
V plane field

960 bytes
wide

followed by top field:

TOP   1,920 Y   960 U   960 V

540
high

1,036,800
bytes/ Y plane field

1,920 bytes wide

270
high

259,200 bytes/
U plane field

960 bytes
wide

270
high

259,200 bytes/
V plane field

960 bytes
wide

Valid video data ranges:

- Y: 16 - 235
- U and V: 16 - 240

3.4   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
yuvmake1088	Add extra lines at the top/bottom of a 1920x1080 YUV file to make it 1920x1088
yuvfieldcombine	Combine interlaced fields which are stored in alternating format (bottom field followed by top field, each half-height) into frames where alternate lines contain alternate fields

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 yuvmake1088

This is a command line program for adding 8 additional lines to 1080 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:

```
yuvmake1088 <filename.yuv> <p> <n> <c>
```

where

❑ `<filename.yuv>` is the input filename which is 1080 lines vertically (must have extension `.yuv`)

❑ `<p>` = progressive or interlaced input file, set to 'p' or 'i'

❑ `<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.

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

```
inputfile_1088.yuv
```
(the '_1088' is added by `yuvmake1088`)

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

4.2.3 yuvfieldcombine

This is a command line program for combining interlaced fields which are stored in alternating format (bottom field followed by top field, each half-height) into frames where alternate lines contain alternate fields.

It is assumed that the video data is stored bottom field first.

Usage:

```
yuvfieldcombine <filename.yuv> <xsize> <ysize> <nnn>
```

where

❑ `<filename.yuv>` is the input filename (must have extension `.yuv`)

❑ `<xsize>` = horizontal resolution of the input file (must be multiple of 2)

❑ `<ysize>` = vertical resolution of **frame** of the input file, e.g. set to 1080 for 1920x1080i; set to 480 to 720x480i (must be multiple of 4)

❑ `<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 fields combined will be

```
inputfile_FLDCMB.yuv
```
(the '_FLDCMB' is added by `yuvfieldcombine`)
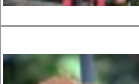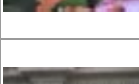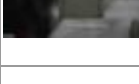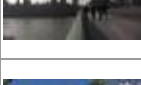
The output file is put in the same folder as the input file.

5. List of clips

5.1 Clips summary

- Total time of clips at each resolution (at 25 fps): **45 mins 46 secs 14 frames**
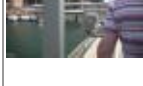
Clip number(s)	Title	Main purposes	Duration (mins:secs: frames) at 25fps	Begin	End
T2V003001, T2V003101, T2V003201	Bars_countdown	Monitor set up; text	00:50:00		
T2V003002, T2V003102, T2V003202	Big_Ben	Rapid motion tracking and linear detail patterns with bright colours and large monochromatic areas	00:17:13		
T2V003003, T2V003103, T2V003203	Red_leaves	Shallow focus on detailed natural patterns and irregular global motion	01:01:24		
T2V003004, T2V003104, T2V003204	Priest	Compression of facial features with objects passing behind and in front	00:49:06		
T2V003005, T2V003105, T2V003205	Eye_pod	Slow global motion with high contrast	02:23:18		
T2V003006, T2V003106, T2V003206	Angled_ride	Fast global motion	00:29:00		
T2V003007, T2V003107, T2V003207	Duckman	Compression of bright and rounded features with quick movement	00:47:19		
T2V003008, T2V003108, T2V003208	Green_weed	Macroblock motion vectors in high contrast image, with small particles in front of objects	00:34:04		
T2V003009, T2V003109, T2V003209	Service_road	Low movement low contrast with similar areas with reflections and scene transition	00:28:24		
T2V003010, T2V003110, T2V003210	Neon_tunnel	Medium speed leftwards global motion with rapid irregular motion and bright changing colours	01:05:16		
T2V003011, T2V003111, T2V003211	Pidgeon_bully	Compression of fur-like detailed features with shallow focus	00:39:21		
T2V003012, T2V003112, T2V003212	Red_white_crane	Rapid global and macroblock motion vector tracking behind objects	00:22:04		

T2V003013, T2V003113, T2V003213	A_real_pro	Compression of people with limited global movement but passing objects	00:40:14		
T2V003014, T2V003114, T2V003214	Raindrops	Irregular random objects (raindrops) with patterns and fine detail	00:32:07		
T2V003015, T2V003115, T2V003215	Dough_head	Grainy and dark images with medium speed global motion	00:46:24		
T2V003016, T2V003116, T2V003216	Polizia	Text and people compression with limited then rapid global motion and macroblock motion vector tracking	01:31:09		
T2V003017, T2V003117, T2V003217	Beer_festival	High contrast early evening images with some very bright and some dark grainy images with people	00:31:15		
T2V003018, T2V003118, T2V003218	Mind_the_wall	Compression of very rapidly moving patterns (rapid but consistent global motion and macroblock motion vectors)	00:21:04		
T2V003019, T2V003119, T2V003219	Little_girl	Random but relatively slow global motion with zoom in and tracking person with people obscuring view	00:51:11		
T2V003020, T2V003120, T2V003220	Red_cloths	Low movement high contrast compression efficiency check with slight global movement	00:12:21		
T2V003021, T2V003121, T2V003221	Incy_spider	Fine detail compression against contrasting background with slow global zoom out, zoom in and focus change	00:58:02		
T2V003022, T2V003122, T2V003222	In_honorem	Compression of text in low contrast image with irregular vertical movement and regular horizontal movement	00:25:11		
T2V003023, T2V003123, T2V003223	Girls_appear	Shallow focus on very grainy image then on people with scene change and global zoom out	00:36:12		
T2V003024, T2V003124, T2V003224	Street_vendors	Partly out-of-focus on people at varying distances with low contrast background	00:19:12		
T2V003025, T2V003125, T2V003225	Parliament	Medium speed global motion left with high contrast and detailed patterns	00:32:19		
T2V003026, T2V003126, T2V003226	Flower_focus	Brightly sunlit natural patterns with focus shifting and zoom out	01:14:02		

T2V003027, T2V003127, T2V003227	Pimlico_bus	Rapid macroblock tracking with increasing feature size	00:42:10		
T2V003028, T2V003128, T2V003228	No_party	Mainly low movement grainy image with high contrast text and reflections, with some rapid up/down and random global motion and scene change	01:03:00		
T2V003029, T2V003129, T2V003229	Two_girls	Rapid global motion left and macroblock motion vectors	00:12:19		
T2V003030, T2V003130, T2V003230	Boten_Stael	High contrast sunlit image with slow global zoom out and motion down to areas with dark shadow	00:37:06		
T2V003031, T2V003131, T2V003231	Bike_woman	Medium speed tracking of motion vectors with frequently obscured subject and opposite direction global motion in highly patterned image	00:32:11		
T2V003032, T2V003132, T2V003232	Leaning_column	Compression of angled object and text with low-contrast pattern (stone) and light monochromatic background	00:17:08		
T2V003033, T2V003133, T2V003233	Rippling_water	High contrast high reflection high grain rapid movement: very hard for motion vector correlation/tracking	00:09:05		
T2V003034, T2V003134, T2V003234	Buggy_ride	Obscured subject and multiple objects moving in each direction with over-bright background (level changing)	01:39:03		
T2V003035, T2V003135, T2V003235	Windfarm	Low contrast rotating objects and rapidly varying focus	00:28:01		
T2V003036, T2V003136, T2V003236	Cargo_boat	Tracking linear object moving on water with round and detailed pattern objects in background	00:43:09		
T2V003037, T2V003137, T2V003237	Fat_bird	Efficiency of compression with limited movement but detailed natural objects and visible grain	00:29:22		
T2V003038, T2V003138, T2V003238	Striped_Tshirt	Motion vectors of increasing size objects (people) with strong patterns	00:13:08		
T2V003039, T2V003139, T2V003239	Globes	Slow global zoom out with round objects and rapidly changing focus	00:18:16		
T2V003040, T2V003140, T2V003240	Lion_fish	Motion vector tracking slow moving natural high-contrast patterns	01:01:12		

T2V003041, T2V003141, T2V003241	London_bridge	Slow scroll up with patterns and some movement	00:13:05		
T2V003042, T2V003142, T2V003242	Police_launch	Motion vector tracking with random high-contrast background (water)	00:17:11		
T2V003043, T2V003143, T2V003243	Nelsons_monument	Slow global scroll down with irregular shapes and patterns and irregular small global movement	00:25:19		
T2V003044, T2V003144, T2V003244	Train_ride	Fast but limited random global motion in any direction	02:25:21		
T2V003045, T2V003145, T2V003245	Just_sitting	Low movement high contrast compression of people	00:42:03		
T2V003046, T2V003146, T2V003246	Squid	Round natural objects with reflections	00:35:22		
T2V003047, T2V003147, T2V003247	That_hurts	Macroblock motion vectors of people with objects in front and behind	00:19:04		
T2V003048, T2V003148, T2V003248	Lit_fountains	High contrast indistinct objects (water) rapidly changing position and colour in grainy image	01:18:00		
T2V003049, T2V003149, T2V003249	4x4_track	Macroblock motion tracking with rapid global motion to the left, with objects in front and behind	00:38:24		
T2V003050, T2V003150, T2V003250	Sloped_walk	Macroblock motion vectors	00:42:24		
T2V003051, T2V003151, T2V003251	Subway_follow	Random very rapid global and macroblock motion with dark images	01:01:01		
T2V003052, T2V003152, T2V003252	Catwalk	Highly patterned high contrast curved object	00:22:10		
T2V003053, T2V003153, T2V003253	Clock_tower	Macroblock motion vectors of identical mirrored areas with detail but monochromatic background	00:10:17		
T2V003054, T2V003154, T2V003254	Going_up	Slow global zoom out	00:30:20		
T2V003055, T2V003155, T2V003255	Going_down	Fine detail / moire patterns with some reflections	00:24:10		

T2V003056, T2V003156, T2V003256	Vatican_traffic	Complex scene with multiple objects for motion vector tracking, with scene jump	00:21:17		
T2V003057, T2V003157, T2V003257	Passing_harbour	Very rapid global motion left in high contrast scene	00:39:14		
T2V003058, T2V003158, T2V003258	Las_Ramblas	Slow macroblock motion vector tracking of people	00:34:02		
T2V003059, T2V003159, T2V003259	Gaudi_church	Slow scroll up with fine detail against monochromatic background and particle scene change	00:42:11		
T2V003060, T2V003160, T2V003260	Reflections	Limited movement with reflections and large and small patterns	00:37:15		
T2V003061, T2V003161, T2V003261	Night_columns	Left/right regular rotational global motion with similar patterns and natural textures	00:18:16		
T2V003062, T2V003162, T2V003262	Water_up	High contrast image macroblock motion vector tracking with random angled motion	00:25:11		
T2V003063, T2V003163, T2V003263	Dummy	Motion vector tracking of obscured objects in grainy picture with slow global zom out and scroll down and fade scene change	00:28:17		
T2V003064, T2V003164, T2V003264	Cable_cars	Limited slow macroblock movement but frequent small rotational global movement, with monochrome background	00:49:22		
T2V003065, T2V003165, T2V003265	Ceiling_rotate	Rotating global motion in dark extremely grainy image with some highlights	00:18:17		
T2V003066, T2V003166, T2V003266	Rowing_sailing	Macroblock motion vectors with complex scene and finely defined objects with random objects (water) and minor scene change	01:25:08		
T2V003067, T2V003167, T2V003267	Sky_clouds	Slow uniform global motion and macroblock tracking of indistinct irregular shapes	01:03:06		

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	Filename(s)	T2V003001_Bars_countdown_1920x1080p.yuv T2V003101_Bars_countdown_1280x720p.yuv T2V003201_Bars_countdown_1920x1080i.yuv
GN.02	Horizontal x vertical size(s)	1920x1080; 1280x720
GN.03	Progressive / Interlaced	'p' file suffix = progressive; 'i' file suffix = interlaced
GN.04	Video format	YUV planar 4:2:0
GN.05	Bits per sample	8 (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 *	00:50:00
GN.09	No. of frames (1080i 1 less *)	1250
GN.10	1080i generation / artefacts	Motion tracking
GN.11	Original video format	1080p25; 720p25
GN.12	File size(s) on disk (MB)	3,888 : 1,729: 3,882
GN.13	CF words	CF-text, CF-dark_picture, CF-patterns, CF-black_background, CF-round_objects, CF-transitions, CF-large_monochromatic
GN.14	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate 16bit uncompressed 48kHz stereo WAV
GN.15	Associated audio filenames	T2a003x01_Bars_countdown_act_MP1LII.mpa T2a003y01_Bars_countdown_act_unc.wav
GN.16	Associated audio description	1kHz audio tone and pips on countdown
GN.17	Audio duration	Same as video (video played at 25fps)

	Clip features	Details		SCENE SUBJECTS	
LIGHT CONDITIONS			SS.01	People	-
LC.01	Bright sunlight	-	SS.02	Faces	-
LC.02	Bright daylight	-	SS.03	Vehicles	-
LC.03	Dull daylight	-	SS.04	Buildings	-
LC.04	Shaded areas	-	SS.05	Trees	-
LC.05	Indoors bright	-	SS.06	Text	Some
LC.06	Indoors dark	-	SS.07	Talking head	-
LC.07	Twilight	-	SS.08	Water	-
LC.08	Sunrise/sunset	-	SS.09	Leaves/grass	-
LC.09	Night	-	SS.10	Sky	-
LC.10	Backlighting	-	SS.11	Clouds	-
LC.11	Large brightness change	Some	SS.12	Patterns	Some

SS.13	Round objects	One

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	10 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	T2V003002_Big_Ben_1920x1080p.yuv
		T2V003102_Big_Ben_1280x720p.yuv
		T2V003202_Big_Ben_1920x1080i.yuv
GN.02	Horizontal x vertical size(s)	1920x1080; 1280x720
GN.03	Progressive / Interlaced	'p' file suffix = progressive; 'i' file suffix = interlaced
GN.04	Video format	YUV planar 4:2:0
GN.05	Bits per sample	8 (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 lines (21 lines in 720p 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 (1080i 1 less *)	438
GN.10	1080i generation / artefacts	Frame blend
GN.11	Original video format	1080p25
GN.12	File size(s) on disk (MB)	1,362 : 605 : 1,359
GN.13	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.14	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate
		16bit uncompressed 48kHz stereo WAV
GN.15	Associated audio filenames	T2a003x02_Big_Ben_act_MP1LII.mpa
		T2a003y02_Big_Ben_act_unc.wav
GN.16	Associated audio description	Actual audio recorded with video
GN.17	Audio duration	Same as video (video played at 25fps)

Clip features	Details		LC.09	Night	-
LIGHT CONDITIONS			LC.10	Backlighting	-
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	Buses
LC.06	Indoors dark	-	SS.04	Buildings	One
LC.07	Twilight	-	SS.05	Trees	-
LC.08	Sunrise/sunset	-	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	-
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	T2V003003_Red_leaves_1920x1080p.yuv
		T2V003103_Red_leaves_1280x720p.yuv
		T2V003203_Red_leaves_1920x1080i.yuv
GN.02	Horizontal x vertical size(s)	1920x1080; 1280x720
GN.03	Progressive / Interlaced	'p' file suffix = progressive; 'i' file suffix = interlaced
GN.04	Video format	YUV planar 4:2:0
GN.05	Bits per sample	8 (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 *	01:01:24
GN.09	No. of frames (1080i 1 less *)	1549
GN.10	1080i generation / artefacts	Motion tracking
GN.11	Original video format	1080p25
GN.12	File size(s) on disk (MB)	4,818 : 2,141 : 4,815
GN.13	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.14	Associated audio types	MPEG1 Layer II 48kHz 16bit stereo 384kbps Constant Bit Rate
		16bit uncompressed 48kHz stereo WAV
GN.15	Associated audio filenames	T2a003x03_Red_leaves_act_MP1LII.mpa
		T2a003y03_Red_leaves_act_unc.wav
GN.16	Associated audio description	Actual audio recorded with video
GN.17	Audio duration	Same as video (video played at 25fps)

Clip features		Details			
LIGHT CONDITIONS			LC.09	Night	-
			LC.10	Backlighting	-
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	-

SS.07	Talking head	-		GM.04	Panning	Slow left/right
SS.08	Water	Some		GM.05	Tracking (following)	-
SS.09	Leaves/grass	Lots		GM.06	Fast scroll	-
SS.10	Sky	-		GM.07	Scroll	Up
SS.11	Clouds	-		GM.08	Angled	-
SS.12	Patterns	-		GM.09	Zoom in	-
SS.13	Round objects	-		GM.10	Zoom out	-
				GM.11	Hand-held camera	-

SCENE PROPERTIES

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

SUBJECT MOTION

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

COLOURS & CONTRAST

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

SOUND CONTENT

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

SOUND CHARACTERISTICS

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

GLOBAL MOTION

GM.01	Fast track/pan	-
GM.02	Tracking in/out	-
GM.03	Tracking	-