

### **Question 1: Image Extraction at Best Quality**

**Qn.1A, if you used the supplied replay software:**

please save and submit your results using the filename:  
'Q1A\_ReplayDescribed\_ID11.jpg'

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, and (ii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

**Use of the given player software to look at the data and extract the frame.**

**Qn.1A, if you used another method:**

Please save and submit your results using the filename: 'Q1A\_OtherMethod\_ID11.png'

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, (ii) all tools used, and (iii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

**Use defraser to analyse the stream and extract the first iFrame.**

**Qn.1B, if you used the supplied replay software:**

Please save and submit your results using the file name:  
'Q1B\_ReplayDescribed\_ID11.jpg and .pdf'

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, and (ii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

Use of the given player software to look at the data and extract the frame in JPEG and PDF.

**Qn.1B, if you used another method:**

Please save and submit your results using the filename 'Q1B\_OtherMethod\_ID11'

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, (ii) all tools used, and (iii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

**Use WinHex to extract the frame (identified by time stamp). Video is motion JPEG, PIA can be used to extract the JPEG frames (720x288)**

**Qn.1C**

Frame Size of source file recording used in Qn.1A				Frame Size of source file recording used in Qn.1B			
?	x	?	pixels	?	x	?	pixels

What are your conclusions about the raw, encoded quality of the provided video frame/sequence in Q1A and Q1B?

**Qn.1C**

- What is the frame size (in pixels) of each of the source file recordings given for Question 1A & Question 1B?

Q1A\_ReplayDescribed\_ID11.jpg

Using the method replay described method, the DVR-Player will extract a frame with the size

1008 x 767 Pixel, including showing GUI from the DVR-Player. The video frame only is about 742 x 618.

Q1A\_OtherMethod\_ID11.png

The size of the extracted frame directly from the data set by using NFI's Defraser is 720 x 288

Q1B\_ReplayDescribed\_ID11.jpg

Using the method replay described, the size of the jpg extracted image is 720x594 pixels, including metadatda information. Frame only is 720 x 576 pixels.

Using the method replay described, the size of the extracted pdf file is 210 yx 297 mm (DIN-A4), including metadatda information. The embedded image Size is analogue to the size of the extracted jpg image.

Q1B\_OtherMethod\_ID11.JPG

The size of the image ist 720 x 288 pixels and appears to be the native frame size. It was extracted with the BKA Image Tool PIA directly from the data stream.

- What are your conclusions about the raw, encoded quality of the provided video frame/sequence in Q1A and Q1B?

The image size and quality shown by the players are not comparing to the native size and quality. The extracted Images by these tools are even poorer in Quality. If possible, the best shown quality is to extract the images directly from the data stream.

## **Question 2: Super-Resolution from supplied sequence of 249 .bmp files**

### **Qn.2A**

**Please select your best result, i.e.: a single best quality super-resolution image:**  
Please save and submit your results using filename: "Q2A\_Superres\_ID11.png"

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

Is loadable

2. Please specify all software tools and all Enhancement Filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

1. Amped FIVE: Load sequence, scale factor 10 bilinear, Frame average, sharpen

3. Did you select a "region of interest" for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

Use any space you need

4. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

Use any space you need

5. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

Use any space you need

## **Qn.2B**

**Please select your best result, i.e.: a single best quality super-resolution image:**  
Please save and submit your results using filename: "Q2B\_SuperRes\_ID11.png"

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

Is loadable

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 1

Decision reached how:

3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

Use any space you need

1.Amped FIVE: Load, set ROI, Scale by 8 (bilinear), Rotate 180, Local Stabilisation on plate 1, Frame average, Optical Deblur (Size 14)

4. Did you select a “region of interest” for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

Use any space you need

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

Use any space you need

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

Use any space you need

**Qn2B. (continued): optional:**

As indicated on the Collaborative Exercise webpage you may choose to submit multiple results. If this is the case then please specify how you obtained your results by replicating the previous 6 points for each Procedure/toolset used and/or each possible license plate you focussed on.

**For example:**

Please save and submit your results using filename:

**'Q2B\_SuperRes\_Procedure1\_PlateAll\_YOURINITIALS'** to indicate the best enhancement result you obtained for all plates using the Procedure1 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

**and/or**

Please save and submit your results using filename:

**File name: 'Q2B\_SuperRes\_Procedure2\_Plate1\_YOURINITIALS'** to indicate the best enhancement result you obtained for Plate 1 using the Procedure2 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

**and/or**

Please save and submit your results using filename:

**File name: 'Q2B\_SuperRes\_Procedure2\_Plate2\_YOURINITIALS'** to indicate the best enhancement result you obtained for Plate 2 using the Procedure2 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

etc.

**Qn.2C (optional)**

**Please select your best result, i.e.: a single best quality super-resolution image:**  
please save and submit your results using filename: "Q2C\_SuperRes\_ID11.png"

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

Is loadable

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 1

Decision reached how:

3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

1. Amped FIVE:Load, set ROI, Scale by 8 (bilinear), Rotate 180, Local Stabilisation on plate 1, Frame average, Optical Deblur (Size 12)

4. Did you select a "region of interest" for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

Use any space you need

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

Use any space you need

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

Use any space you need

**Qn2C. (continued): optional:**

As indicated on the Collaborative Exercise webpage you may choose to submit multiple results. If this is the case then please specify how you obtained your results by replicating the previous 6 points for each Procedure/toolset used and/or each possible license plate you focussed on.

**For example:**

Please save and submit your results using filename:

**'Q2C\_SuperRes\_Procedure1\_PlateAll\_YOURINITIALS'** to indicate the best enhancement result you obtained for all plates using the Procedure1 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

**and/or**

Please save and submit your results using filename:

**File name: 'Q2C\_SuperRes\_Procedure2\_Plate1\_YOURINITIALS'** to indicate the best enhancement result you obtained for Plate 1 using the Procedure2 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

**and/or**

Please save and submit your results using filename:

**File name: 'Q2C\_SuperRes\_Procedure2\_Plate2\_YOURINITIALS'** to indicate the best enhancement result you obtained for Plate 2 using the Procedure2 you will describe using a cut-paste repetition of the 6 previous subquestions above, etc.

etc.

### **Question 3: Focal deblur test**

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

#### **125 cm chart:**

Please save and submit your results using filename: 'Q3\_125cm\_ID11.jpg'

Amped FIVE

#### **75 cm, 4<sup>th</sup> line:**

Please save and submit your results using filename: 'Q3\_75cm\_Line4\_ID11'

Amped FIVE

#### **75 cm, 5<sup>th</sup> line:**

Please save and submit your results using filename:

Use any space you need

#### **any other results: optional:**

Please save and submit your results using filenames:

'Q3\_100cm\_ID11.jpg'

'Q3\_150cm\_ID11.jpg'

'Q3\_175cm\_ID11.jpg'

'Q3\_200cm\_ID11.jpg'

'Q3\_225cm\_ID11.jpg'

Amped FIVE

#### **Question 4: Motion deblur test**

##### **Qn.4A:**

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

If you wish to provide results for different regions of interest in the image, please specify their coordinates and/or indicate the region in a small thumbnail, and use the filenames: "Q4A\_ID11.jpg".

Region NUMBER: coordinates and/or thumbnail:

Amped FIVE: motion deblur

##### **Qn.4B:**

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

If you wish to provide results for different regions of interest in the image, please specify their coordinates and/or indicate the region in a small thumbnail, and use the filenames: "Q4A\_RegionNUMBER\_YOURINITIALS".

Region NUMBER: coordinates and/or thumbnail:

no good results found