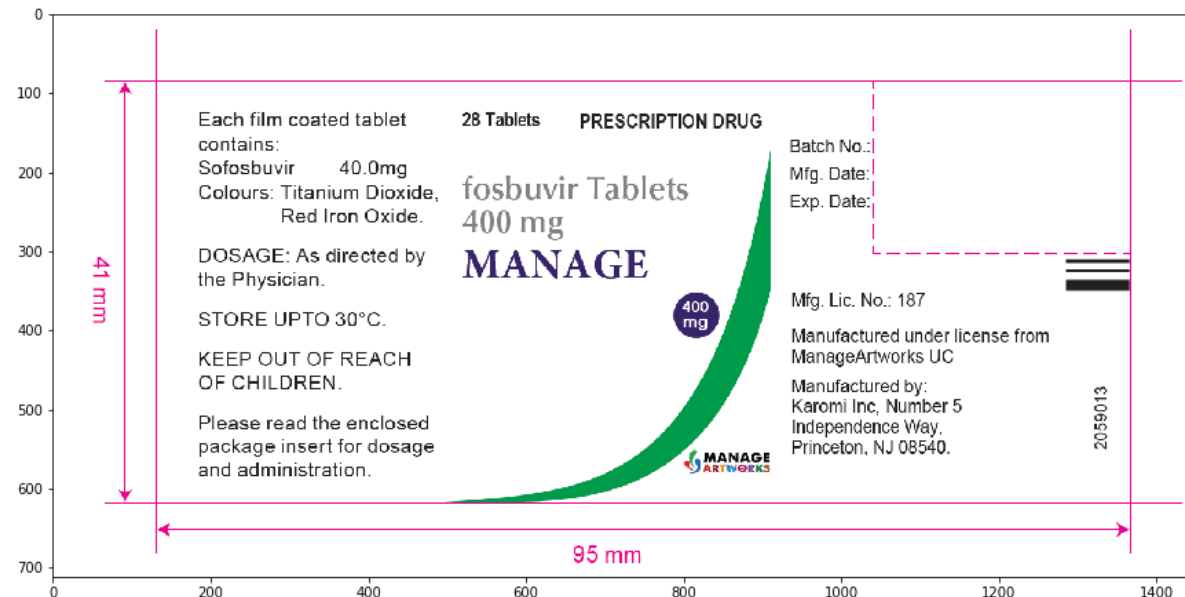


Image Analysis

```
In [74]: import numpy as np
import matplotlib.pyplot as plt
import imageio
%matplotlib inline
```

```
In [75]: pic = imageio.imread('a1_1.PNG')
plt.figure(figsize = (15,15))
plt.imshow(pic)
```

Out[75]: <matplotlib.image.AxesImage at 0x2326a29dc50>



```
In [76]: type(pic)
```

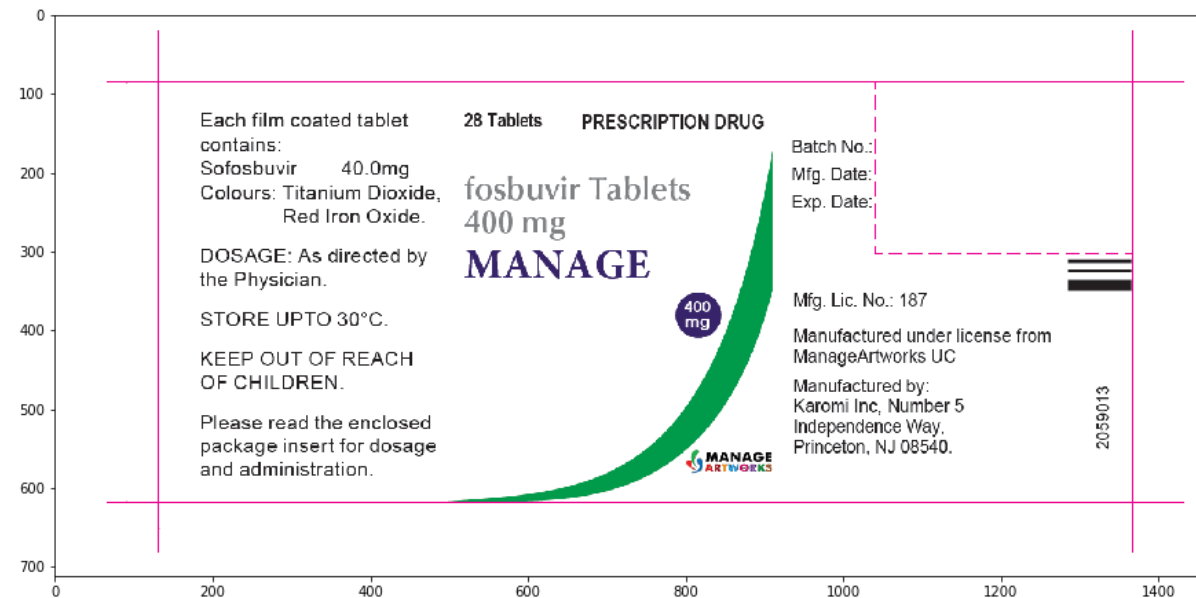
Out[76]: imageio.core.util.Array

```
In [77]: pic.shape
```

Out[77]: (712, 1461, 4)

```
In [78]: pic[640:700,135:1366,:]=[255,0,0,0]
pic[87:616,0:120,:]=[255,0,0,0]
plt.figure(figsize = (15,15))
plt.imshow(pic)
```

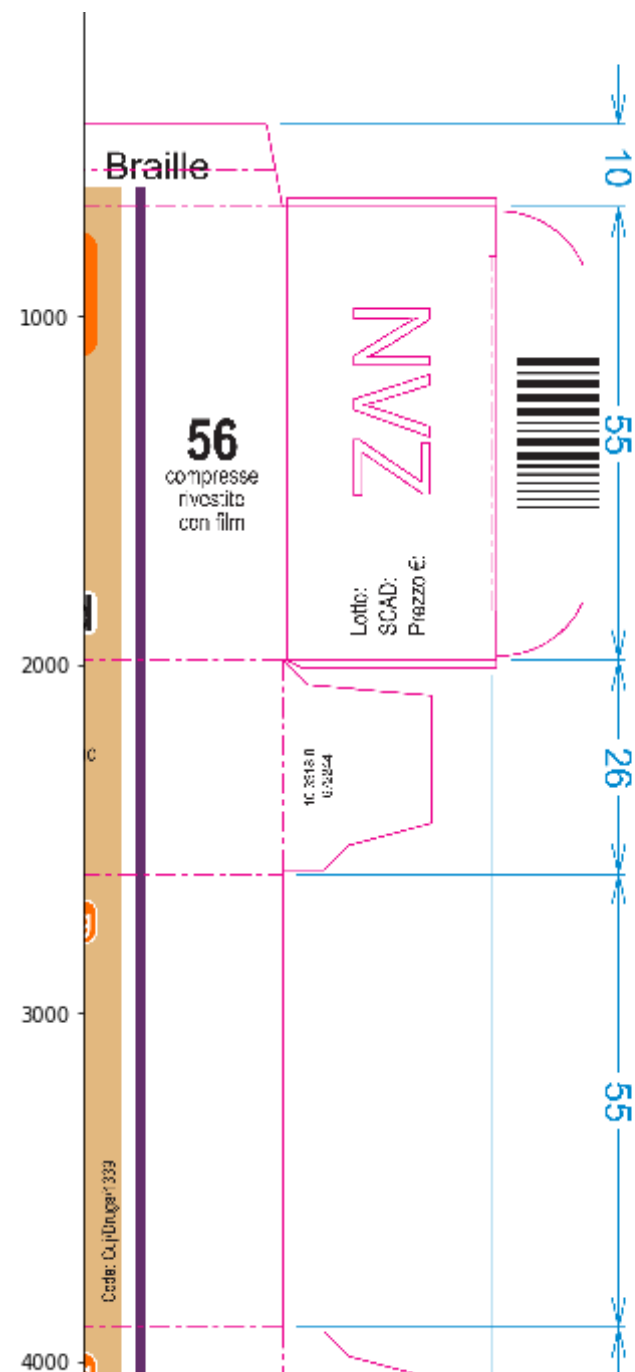
Out[78]: <matplotlib.image.AxesImage at 0x2326a3042e8>

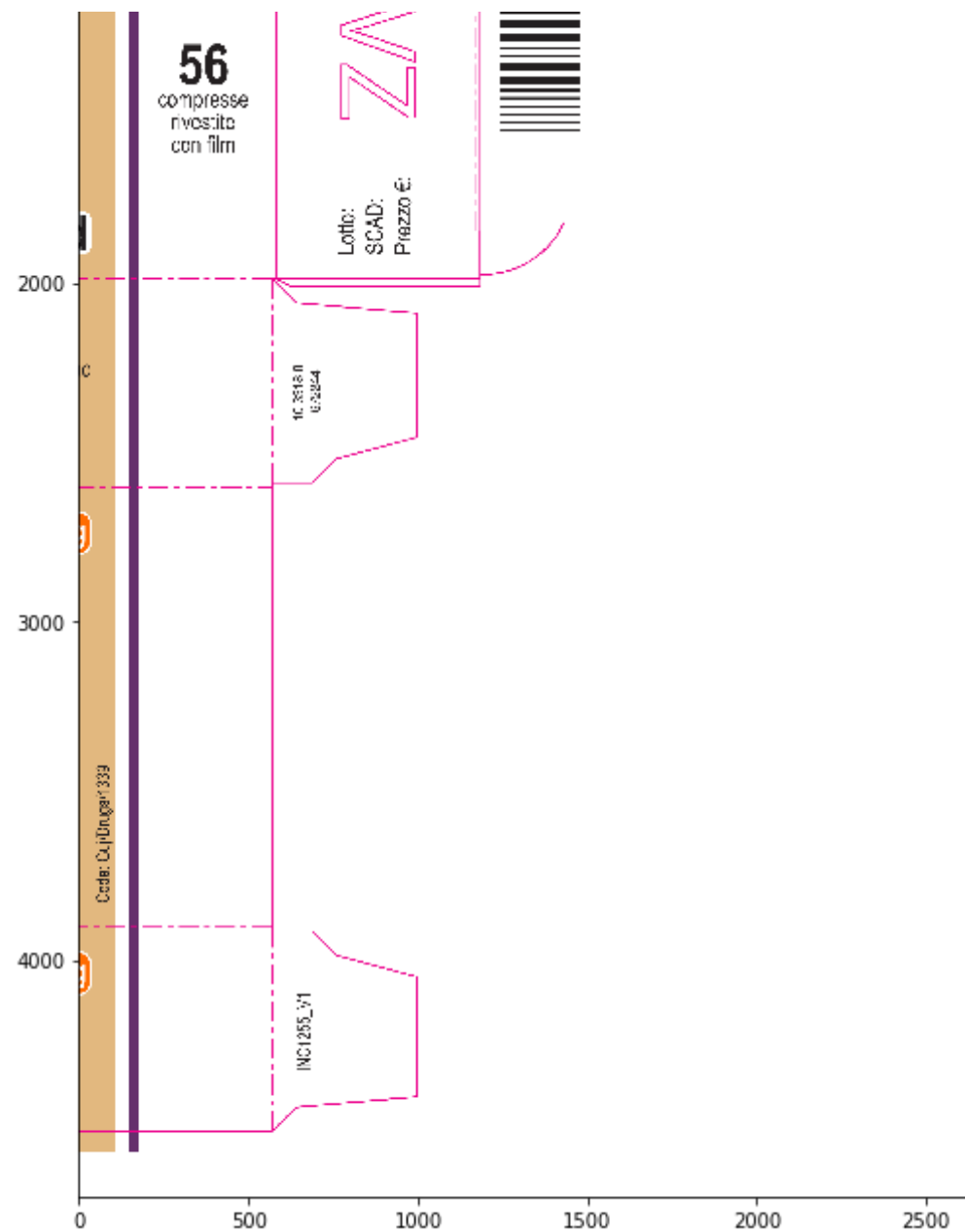


```
In [79]: pic1 = imageio.imread('a1_2.PNG')
plt.figure(figsize = (15,15))
plt.imshow(pic1)
```

Out[79]: <matplotlib.image.AxesImage at 0x2326c043cf8>







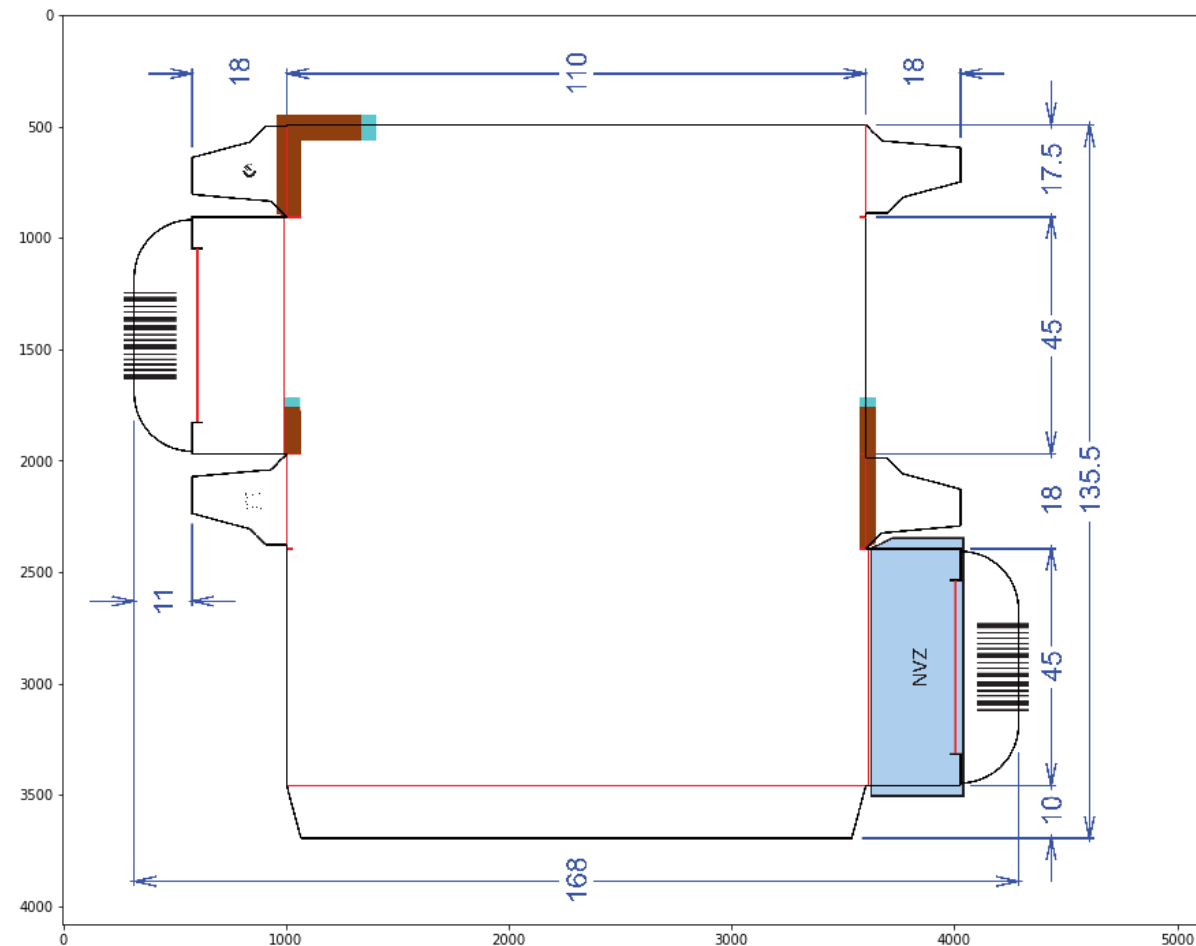
In [81]: `pic1.shape`

Out[81]: (4699, 2660, 3)

In []:

```
In [82]: pic2 = imageio.imread('a1_3.PNG')  
plt.figure(figsize = (15,15))  
plt.imshow(pic2)
```

Out[82]: <matplotlib.image.AxesImage at 0x2326e4c7cc0>



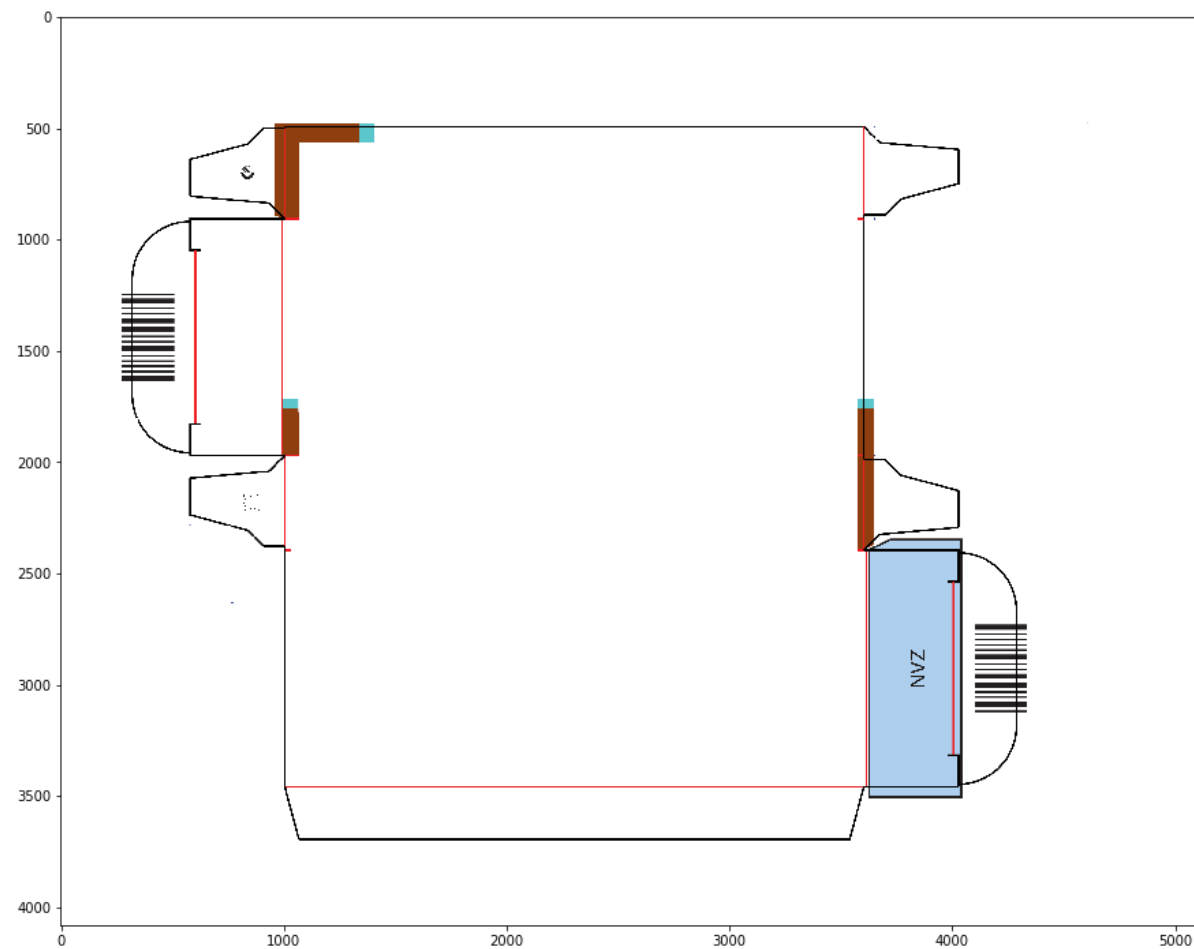
```
In [83]: pic2.shape
```

```
Out[83]: (4080, 5128, 3)
```

```
In [84]: pic2 = imageio.imread('a1_3.PNG')
pic2[3750:4080,200:4500,:]=[255,255,255]
pic2[150:480,200:4500,:]=[255,255,255]
pic2[480:3750,4360:5128,:]=[255,255,255]
pic2[480:600,500:600,:]=[255,255,255]
pic2[1800:4080,125:350,:]=[255,255,255]
pic2[2287:2720,350:765,:]=[255,255,255]
pic2[480:549,3660:4520,:]=[255,255,255]
pic2[900:950,3660:4520,:]=[255,255,255]
pic2[1950:1980,3660:4520,:]=[255,255,255]
pic2[2300:2400,4050:4520,:]=[255,255,255]
pic2[3600:3750,3570:4450,:]=[255,255,255]
pic2[3450:3550,4050:4350,:]=[255,255,255]
pic2[3300:3700,4270:4360,:]=[255,255,255]

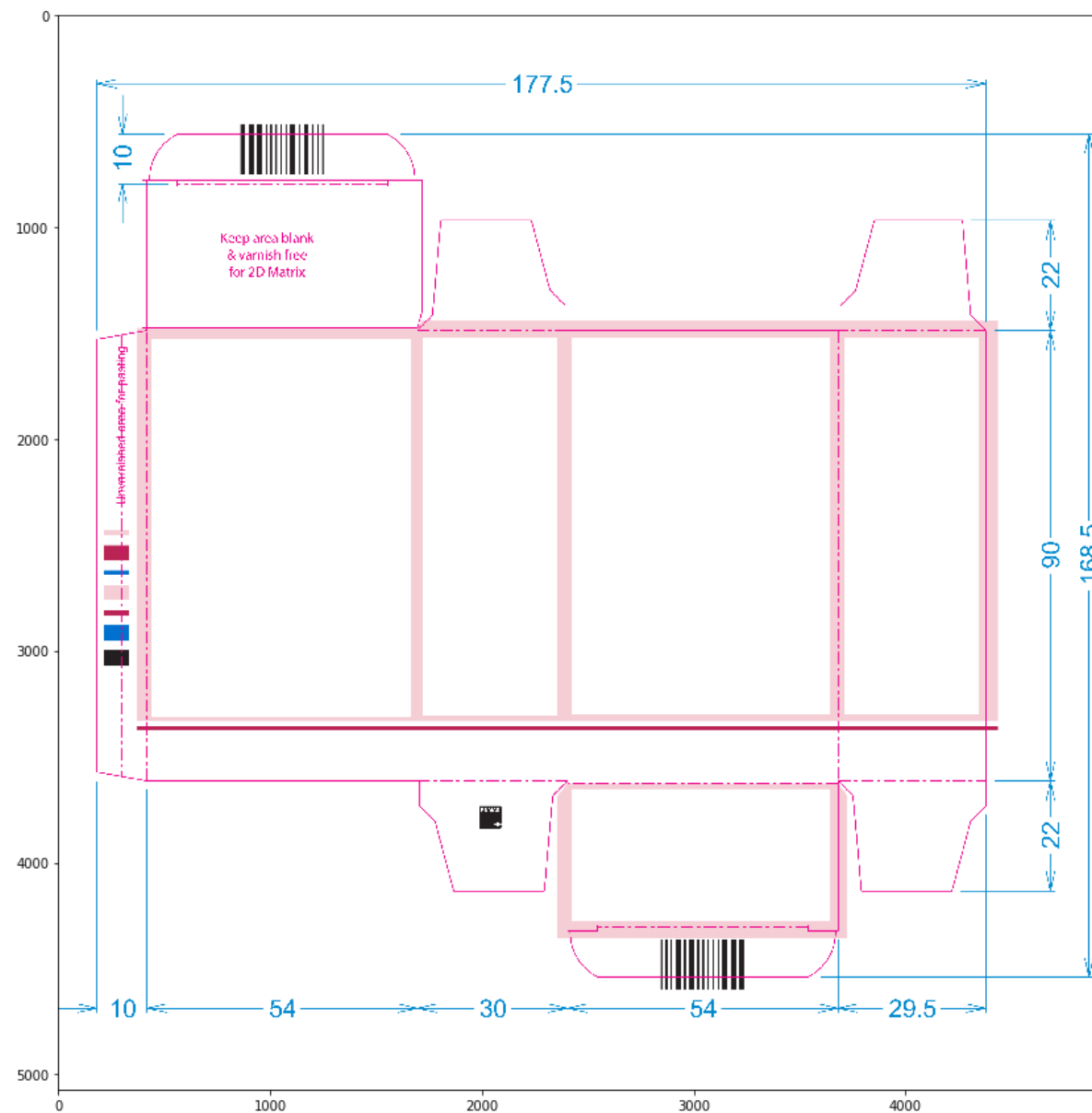
plt.figure(figsize = (15,15))
plt.imshow(pic2)
```

```
Out[84]: <matplotlib.image.AxesImage at 0x2326e53c3c8>
```



```
In [85]: pic3 = imageio.imread('a1_4.PNG')  
plt.figure(figsize = (15,15))  
plt.imshow(pic3)
```

```
Out[85]: <matplotlib.image.AxesImage at 0x232792d4390>
```

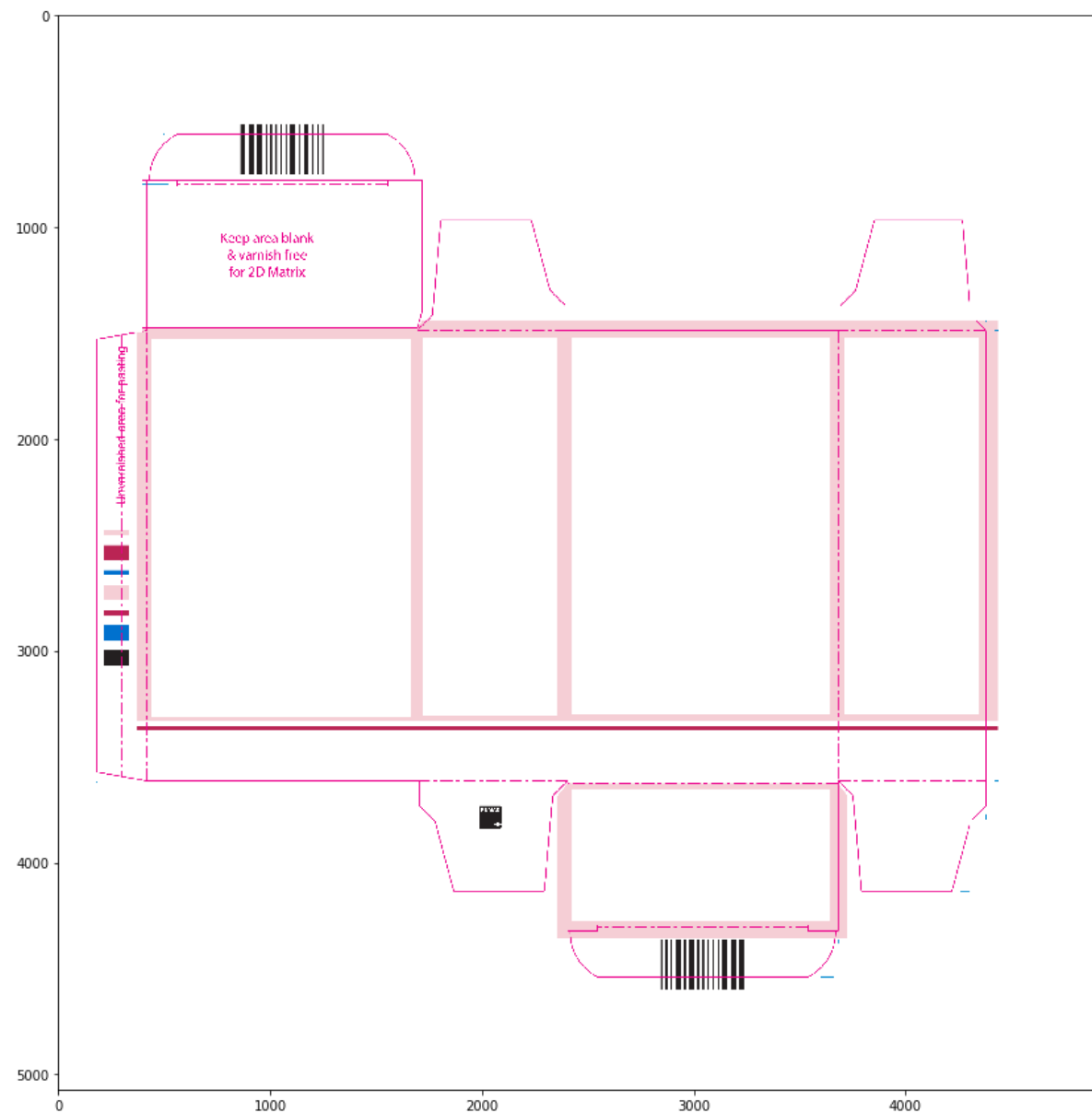
In [86]: `pic3.shape`

Out[86]: (5072, 4960, 3)

```
In [87]: pic3 = imageio.imread('a1_4.PNG')
pic3[4600:5072,0:4960,:]=[255,255,255]
pic3[550:5072,4440:4960,:]=[255,255,255]
pic3[250:370,50:4960,:]=[255,255,255]
pic3[550:600,1600:4960,:]=[255,255,255]
pic3[350:1500,0:400,:]=[255,255,255]
pic3[350:1440,4300:4500,:]=[255,255,255]
pic3[3800:4800,4300:4500,:]=[255,255,255]
pic3[4380:4600,3660:4400,:]=[255,255,255]
pic3[3623:4600,140:500,:]=[255,255,255]
pic3[500:600,140:500,:]=[255,255,255]

plt.figure(figsize = (15,15))
plt.imshow(pic3)
```

```
Out[87]: <matplotlib.image.AxesImage at 0x2327f41bcc0>
```



In []:

In []:

In []: