問１．
[Claim 1]

An energy dispersive X-ray detection apparatus for performing elemental analysis by irradiating a sample with an electron beam or an X-ray and detecting a characteristic X-ray generated from a surface of the sample,

the energy dispersive X-ray detection apparatus comprising:

a device holder that accommodates a semiconductor X-ray detection device and has a female screw formed in a cylindrical shape; and

a finger main body that accommodates a circuit board having an initial-stage FET for amplifying a signal from the semiconductor X-ray detection device, includes a cooling mechanism, and has a male screw,

wherein the semiconductor X-ray detection device is fixed by fastening the device holder and the finger main body with the female screw and the male screw.

[Claim 2]

The energy dispersive X-ray detection apparatus according to claim 1, wherein

the device holder that accommodates the semiconductor X-ray detection device is made of a metal material having a higher thermal expansion coefficient, and

the finger main body that accommodates the circuit board having the initial FET is made of a metal material lower in thermal expansion coefficient than the metal material for the device holder.

[Claim 3]

The energy dispersive X-ray detection apparatus according to claim 1, wherein

the device holder has a slit-shaped opening through which high-voltage wiring for supplying a voltage to an electrode of the semiconductor X-ray detection device is installed in the device holder.

問２．

A typical one of conventional image compression methods is JPEG standardized by ISO. It has been known that JPEG provides favorable coded images and decoded images using discrete cosine transform in cases where a relatively larger coding bit rate is allocated. However, if the coding bit rate is reduced more than a certain degree, block distortion appears conspicuously, so that degradation becomes remarkable subjectively.

In recent years, on the other hand, studies have been actively conducted on

methods of dividing an image into a plurality of bands using a filter bank being a combination of a high-pass filter with a low-pass filter, and performing coding for each band.　Among the methods, wavelet transform-based coding has no drawback of conspicuous block distortion by high compression like DCT, and is therefore expected as a new technique being an alternative to DCT.

　　　　For example, JPEG 2000 approved in January 2001 as an international standard adopts a combined method of highly efficient entropy coding with wavelet transform, and achieves significant improvement in coding efficiency as compared with JPEG.

問３.

　　　　Specifically, the electronic paper device 26 is of a conventionally known self-programming type.　That is, the electronic paper device 26 is capable of displaying an image of predetermined information on the image display part in a voltage applied state and holding the display of the image in a no-power supply state.　In a state in which the microcomputer 23 applies no voltage via the driver to the respective pixel electrodes constituting the matrix on the image display part, white particles charged negatively (-) are retained on the back side of the image display part, whereas black particles charged positively (+) remain at the front side of the image display part.　The image display part is thus colored black when being viewed from the front side.　When the driver operates based on electronic data output from the microcomputer 23 to reverse the polarities of the pixel electrodes on a required portion of the matrix in accordance with information to be displayed in the form of an image, the positional relationship between the white particles and the black particles is switched appropriately, so that the image of the information is displayed on the image display part by the contrast between the white particles and the black particles.　Also in the no-power supply state in which no voltage is applied via the driver to the respective pixel electrodes constituting the matrix on the image display part, the electronic paper device 26 is capable of holding the image display state as it is.