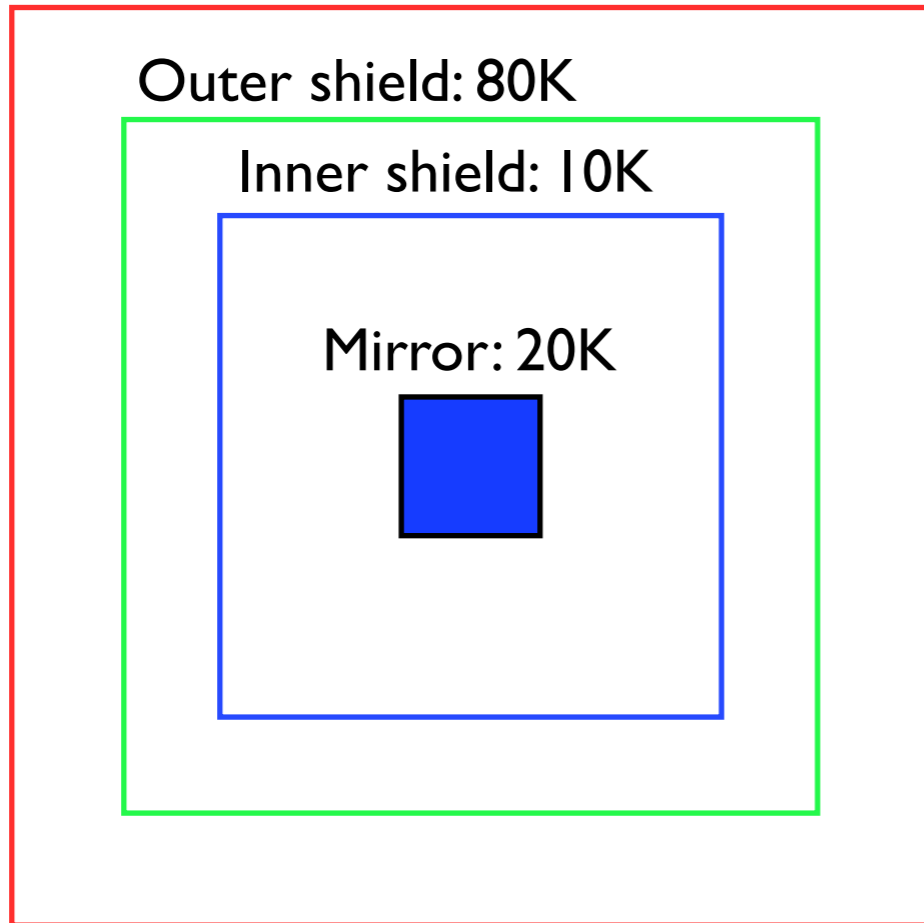


View window for Cryostat

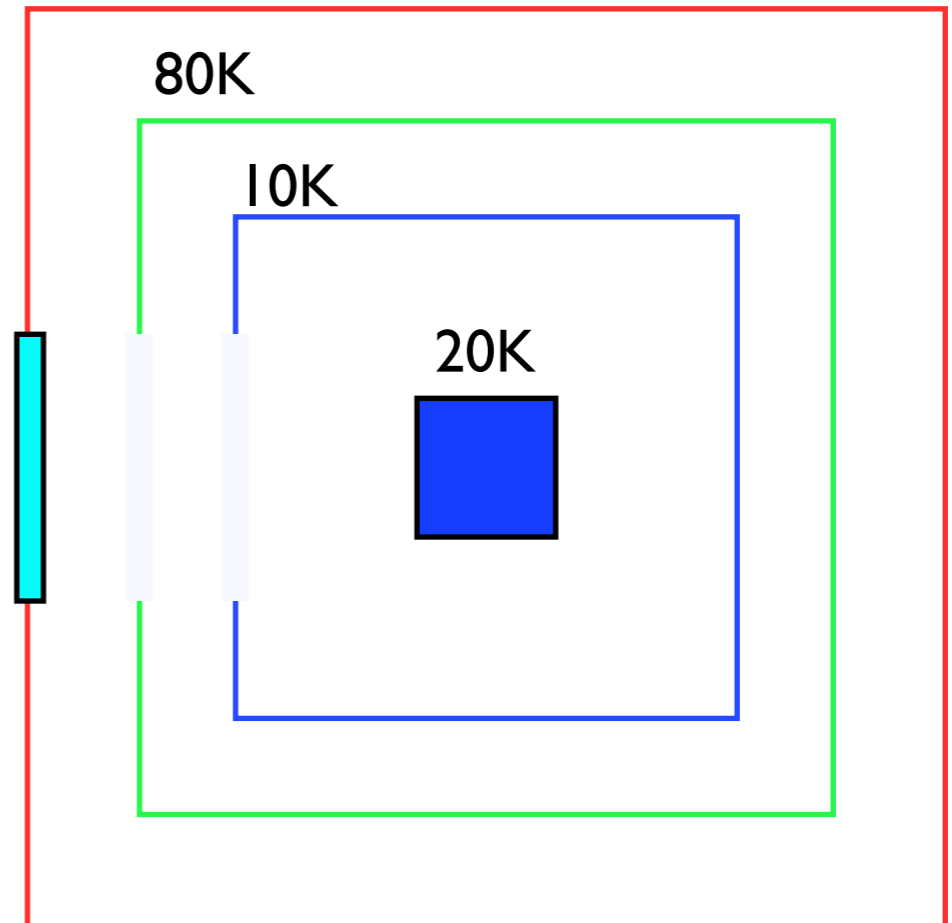
Takashi Uchiyama
2010/09/28

300K



Conventional cryostat
All radiation shield are closed.

300K



Cryostat with view window
If there is a view window, a lot of 300K radiation into the mirror and inner shield.

Cryostat with view window

To avoid 300K radiation incidence, cryo-optical windows should be attached to the radiation shields.

Cryo-optical window should be;
high emissivity or absorption to 300K radiation(10 micron).
high transmissivity of visible light and/or 1 micron.

high thermal conductivity.

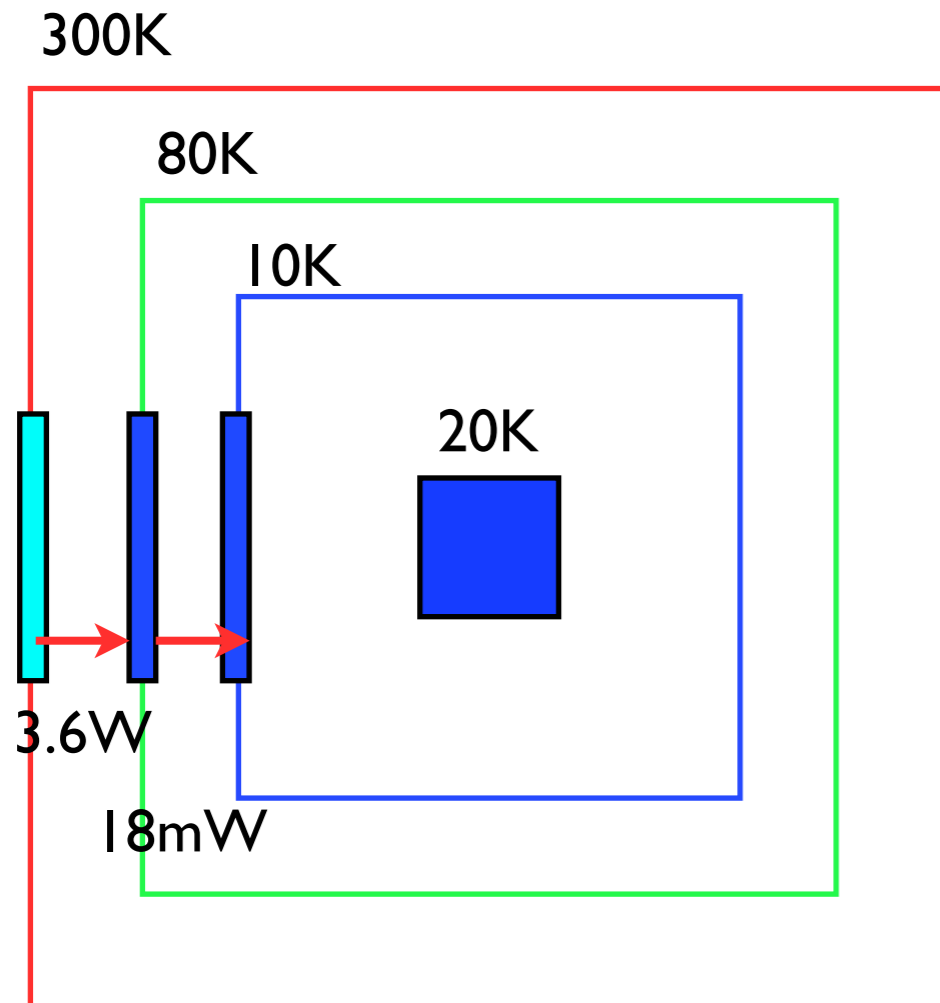
Sapphire window may be possible.

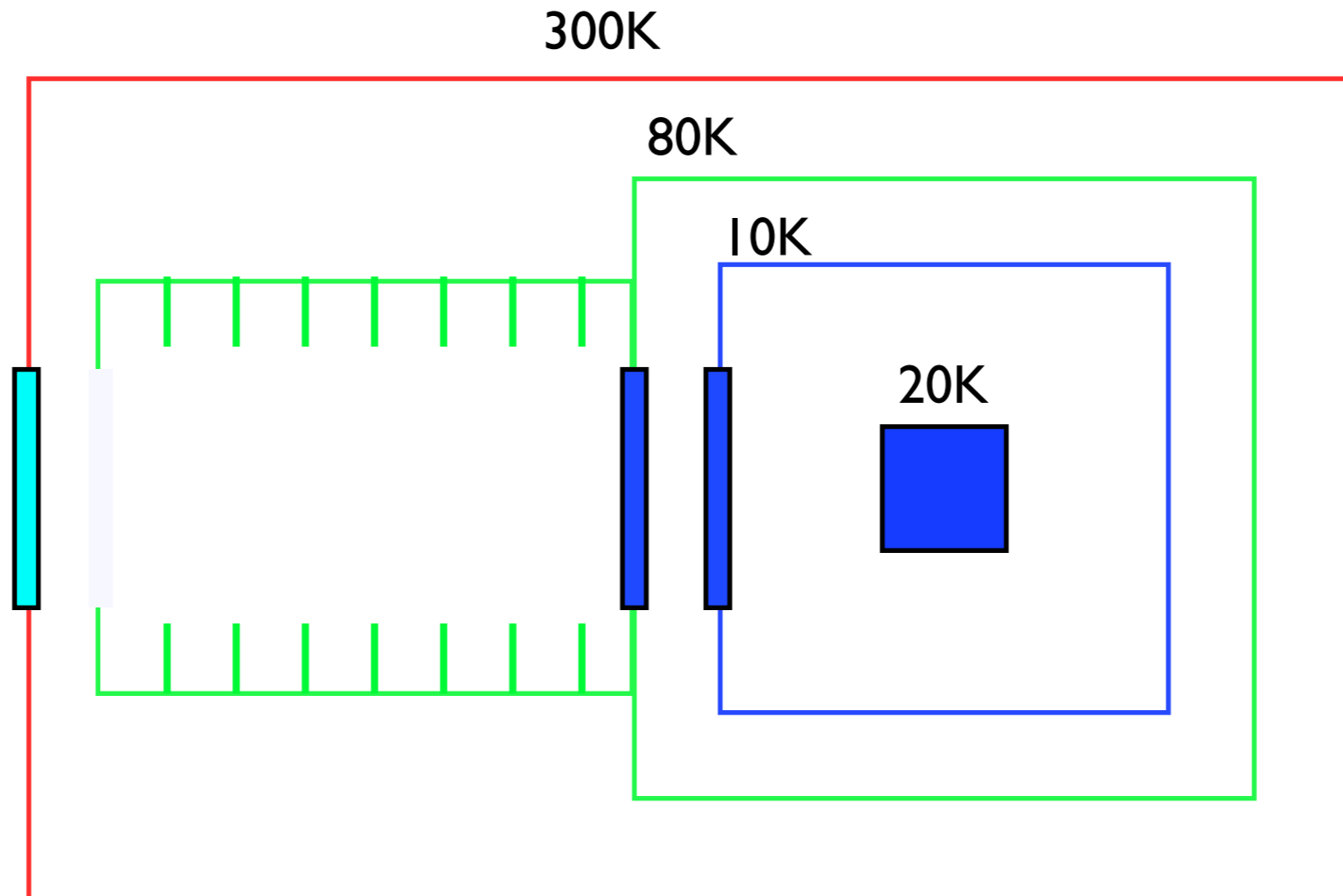
In the case of $\Phi 100$ window;

300K \rightarrow outer: 3.6W.

Outer \rightarrow Inner: 18mW.

If we use 4 view windows, heat in the outer shield becomes 14.4W. Acceptable?





If 300K radiation in the outer shield becomes serious, we may use baffles to reduce the radiation.