WHAT IS CLAIMED IS:

1. An internal crack detecting method for detecting an internal crack in a wafer having a plurality of devices formed on a front side so as to be separated by a plurality of crossing division lines, said internal crack detecting method comprising:

a first image recording step of applying near infrared light having a transmission wavelength to a reference wafer having the same configuration as that of said wafer as a target wafer to be subjected to the detection of said internal crack, thereby obtaining a first image of said reference wafer having no internal crack and then recording said first image;

a processing step of processing said target wafer after performing said first image recording step;

a second image recording step of applying said near infrared light to said target wafer after performing said processing step, thereby obtaining a second image of said target wafer processed and then recording said second image; and

an internal crack detecting step of removing the same image information between said first image and said second image from said second image to obtain a residual image after performing said second image recording step, thereby detecting said residual image as said internal crack in said target wafer.

2. The internal crack detecting method according to claim 1, wherein said processing step includes a grinding step of grinding a back side of said target wafer to reduce the thickness of said target wafer.

3. The internal crack detecting method according to claim 1, wherein said target wafer includes a wafer composed of a substrate formed of lithium tantalate or lithium niobate and a plurality of SAW devices formed on a front side of said substrate, said SAW devices being separated by said division lines; and

the wavelength of said near infrared light is set to 1000 to 1500 nm.

4. The internal crack detecting apparatus according to claim 3, wherein if said internal crack is generated in forming the SAW devices on said substrate and said internal crack is imaged, another wafer to be ground is imaged to obtain image data having no internal crack.

5. The internal crack detecting method according to claim 1, wherein said reference wafer used during said first image recording step and said target wafer used during said second image recording step are the same wafer.

6. The internal crack detecting method according to claim 1, wherein said first image comprises an image of the entirety of said reference wafer and said second image comprises an image of the entirety of said target wafer.

7. The internal crack detecting method according to claim 6, wherein said reference wafer used during said first image recording step and said target wafer used during said second image recording step are the same wafer.

8. The internal crack detecting method according to claim 1, wherein said same image information removed during said internal crack detecting step comprises image information related to said devices and said crossing division lines.

9. The internal crack detecting method according to claim 1, further comprising a step of removing an internal crack from the first image.

10. An internal crack detecting apparatus comprising:

a table for holding a wafer;

imaging means for applying near infrared light having a transmission wavelength to said wafer to thereby image said wafer;

display means for displaying an image obtained by said imaging means; and

control means for receiving said image from said imaging means and transmitting said image to said display means;

said control means including:

a first image recording section for obtaining a first image of a reference wafer having no internal crack by using said imaging means, said reference wafer having the same

configuration as that of a target wafer to be subjected to the detection of an internal crack, and for recording said first image obtained above;

a second image recording section for obtaining a second image of said target wafer having said internal crack by using said imaging means, and for recording said second image obtained above; and

a determining section for removing the same image information between said first image recorded in said first image recording section and said second image recorded in said second image recording section to obtain a residual image, and then determining said residual image as said internal crack.

11. The internal crack detecting apparatus according to claim 10, wherein said control means further includes a coordinate recording section for recording the coordinates indicating the position of said internal crack in said target wafer.

12. The internal crack detecting apparatus according to claim 10, wherein said reference wafer associated with said first image recording section and said target wafer associated with said second image recording section are the same wafer.

13. The internal crack detecting apparatus according to claim 10, wherein said first image comprises an image of

the entirety of said reference wafer and said second image comprises an image of the entirety of said target wafer.

14. The internal crack detecting apparatus according to claim 13, wherein said reference wafer associated with said first image recording section and said target wafer associated with said second image recording section are the same wafer.

15. The internal crack detecting apparatus according to claim 10, wherein said same image information removed by said determining section comprises image information related to devices and crossing division lines.