

CLAIMS

1. A magnetic-disk glass substrate in which an average value of squares of
5 inclinations is 0.0025 or less and a frequency at which squares of inclinations
are 0.004 or more is 15% or less, in a case where samples of inclinations on a
main surface are obtained at intervals of 10 nm.
2. The magnetic-disk glass substrate according to claim 1,
10 wherein the frequency at which squares of inclinations are 0.004 or
more is 10% or less.
3. The magnetic-disk glass substrate according to claim 1,
wherein the glass substrate is made of amorphous glass.
- 15 4. The magnetic-disk glass substrate according to any one of claims 1 to 3,
wherein the glass substrate is made of glass having a glass-transition
temperature of 650°C or more.
- 20 5. The magnetic-disk glass substrate according to any one of claims 1 to 4,
wherein an arithmetic average roughness Ra of the main surface is 0.15
nm or less.
6. A magnetic disk having at least a magnetic recording layer formed on
25 the surface of the magnetic-disk glass substrate according to any one of claims
1 to 5.
7. A magnetic-disk glass substrate having a pair of flat main surfaces,
wherein, after magnetic recording layers are formed above the main
30 surfaces to produce a magnetic disk, a maximum value of an average value of

squares of inclinations and a maximum value of a frequency at which square numbers of inclinations are 0.004 or more in a case where samples of inclinations on the main surfaces are obtained at intervals of 10 nm are determined such that a signal-to-noise ratio of reproduced signals when the
5 signals are written in the magnetic recording layer at a linear recording density of 2000 kbp/ or greater has a favorable level.

CLAIMS

1. A magnetic-disk glass substrate in which an average value of squares of inclinations is 0.0025 or less and a frequency at which squares of inclinations are 0.004 or more is 15% or less, in a case where the average value of the squares of the inclinations (which is a square of the root-mean-square inclination Sdq calculated in accordance with the following Equation 1, wherein A represents an area of a region to be measured) and the squares of the inclinations (which represents a square of the inclination dq calculated in accordance with the following Equation 2) are calculated based on heights (Z) at intervals of 9.76 nm with respect to each of two directions (x, y) orthogonal to each other, each of the heights being obtained by measuring with respect to a measurement region of 1 μm square of the main surface of the magnetic-disk glass substrate with using AFM.

[Math 1]

$$Sdq = \sqrt{\frac{1}{A} \iint_A \left[\left(\frac{\partial Z(x, y)}{\partial x} \right)^2 + \left(\frac{\partial Z(x, y)}{\partial y} \right)^2 \right] dx dy} \quad (\text{Equation 1})$$

[Math 2]

$$dq = \sqrt{\left[\left(\frac{\partial Z(x, y)}{\partial x} \right)^2 + \left(\frac{\partial Z(x, y)}{\partial y} \right)^2 \right]} \quad (\text{Equation 2})$$

2. The magnetic-disk glass substrate according to claim 1,
wherein the frequency at which squares of inclinations are 0.004 or more is 10% or less.
3. The magnetic-disk glass substrate according to claim 1,
wherein the glass substrate is made of amorphous glass.
4. The magnetic-disk glass substrate according to any one of claims 1 to 3,
wherein the glass substrate is made of glass having a glass-transition temperature of 650°C or more.

5. The magnetic-disk glass substrate according to any one of claims 1 to 4,

wherein an arithmetic average roughness Ra of the main surface is 0.15 nm or less.

6. A magnetic disk having at least a magnetic recording layer formed on the surface of the magnetic-disk glass substrate according to any one of claims 1 to 5.