

CLAIMS

1. A disk-shaped information recording medium glass substrate having a rotation center (CP) for use in an information recording medium (1) of an information storage device, comprising:

5 a main surface (14, 15) having a magnetic thin film layer (23) formed thereon; and

an outer peripheral end surface (12) located at an edge of said information recording medium glass substrate (1G), wherein

10 in a distance in a radial direction from said outer peripheral end surface (12) of said main surface (14, 15) toward said rotation center (CP), when

an extension of a line between a point (B1) where said distance in the radial direction from said outer peripheral end surface (12) on said main surface (14, 15) is 1.2 mm and a point (B2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.75 mm is a reference position (BP), and an amount of deviation of any selected position on said main surface from said reference position (BP) in a direction in which an axis of rotation (CL) passing through said rotation center (CP) is a roll-off value (RO),

20 said roll-off value (RO) at a first radial position (P1) where said distance in the radial direction from said outer peripheral end surface (12) is 0.55 mm is a first roll-off value (RO1),

said roll-off value (RO) at a second radial position (P2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.45 mm is a second roll-off value (RO2),

25 said roll-off value (RO) at a third radial position (P3) where said distance in the radial direction from said outer peripheral end surface (12) is 0.30 mm is a third roll-off value (RO3),

a difference (RO1 – RO2) between said first roll-off value (RO1) and said second roll-off value (RO2) is a first roll-off variation (S1), and

a difference (RO2 – RO3) between said second roll-off value (RO2) and said third roll-off value (RO3) is a second roll-off variation (S2),
said first roll-off variation (S1) and said second roll-off variation (S2) satisfy the following conditions 1 and 2:

- 5 $180 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 990 \text{ \AA}$... condition 1
 $650 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 3700 \text{ \AA}$... condition 2.

2. The information recording medium glass substrate according to claim 1,
wherein
10 said condition 1 is $180 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 450 \text{ \AA}$, and
 said condition 2 is $810 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 2480 \text{ \AA}$.

3. The information recording medium glass substrate according to claim 2,
wherein
15 said condition 1 is $250 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 450 \text{ \AA}$, and
 said condition 2 is $950 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 1870 \text{ \AA}$.

4. The information recording medium glass substrate according to any one of
claims 1 to 3, wherein said information recording medium glass substrate (1G) has an
20 inclined surface (1t) having a width of 0.1 mm in the radial direction from said outer
peripheral end surface (12), in a region in which said main surface (14, 15) and said
outer peripheral end surface (12) intersect.

5. The information recording medium glass substrate according to any one of
25 claims 1 to 4, wherein said distance in the radial direction from said outer peripheral
end surface (12) to said axis of rotation (CL) is 32.5 mm.

6. An information recording medium (1) for use in an information storage
device, comprising:

a disk-shaped information recording medium glass substrate (1G) having a rotation center (CP); and

a magnetic thin film layer (23) provided on a main surface of said information recording medium glass substrate (1G),

5 said information recording medium glass substrate (1G) including

a main surface (14, 15) having said magnetic thin film layer (23) formed thereon; and

an outer peripheral end surface (12) located at an edge of said information recording medium glass substrate (1G), wherein

10 in a distance in a radial direction from said outer peripheral end surface (12) of said main surface (14, 15) toward said rotation center (CP), when

an extension of a line between a point (B1) where said distance in the radial direction from said outer peripheral end surface (12) on said main surface (14, 15) is 1.2 mm and a point (B2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.75 mm is a reference position (BP), and an amount of deviation of any selected position on said main surface from said reference position (BP) in a direction in which an axis of rotation (CL) passing through said rotation center (CP) is a roll-off value (RO),

15 said roll-off value (RO) at a first radial position (P1) where said distance in the radial direction from said outer peripheral end surface (12) is 0.55 mm is a first roll-off value (RO1),

said roll-off value (RO) at a second radial position (P2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.45 mm is a second roll-off value (RO2),

25 said roll-off value (RO) at a third radial position (P3) where said distance in the radial direction from said outer peripheral end surface (12) is 0.30 mm is a third roll-off value (RO3),

a difference (RO1 – RO2) between said first roll-off value (RO1) and said second roll-off value (RO2) is a first roll-off variation (S1), and

a difference (RO2 – RO3) between said second roll-off value (RO2) and said third roll-off value (RO3) is a second roll-off variation (S2),
said first roll-off variation (S1) and said second roll-off variation (S2) satisfy the following conditions 1 and 2:

- 5 $180 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 990 \text{ \AA}$... condition 1
 $650 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 3700 \text{ \AA}$... condition 2.

10 7. The information recording medium according to claim 6, wherein a recording density on a single side of said main surface is 500 Gbit/inch² or more.

CLAIMS

1. A disk-shaped information recording medium glass substrate having a rotation center (CP) for use in an information recording medium (1) of an information storage device, comprising:

a main surface (14, 15) having a magnetic thin film layer (23) formed thereon; and

an outer peripheral end surface (12) located at an edge of said information recording medium glass substrate (1G), wherein

in a distance in a radial direction from said outer peripheral end surface (12) of said main surface (14, 15) toward said rotation center (CP), when

an extension of a line between a point (B1) where said distance in the radial direction from said outer peripheral end surface (12) on said main surface (14, 15) is 1.2 mm and a point (B2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.75 mm is a reference position (BP), and an amount of deviation of any selected position on said main surface from said reference position (BP) in a direction in which an axis of rotation (CL) passing through said rotation center (CP) is a roll-off value (RO),

said roll-off value (RO) at a first radial position (P1) where said distance in the radial direction from said outer peripheral end surface (12) is 0.55 mm is a first roll-off value (RO1),

said roll-off value (RO) at a second radial position (P2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.45 mm is a second roll-off value (RO2),

said roll-off value (RO) at a third radial position (P3) where said distance in the radial direction from said outer peripheral end surface (12) is 0.30 mm is a third roll-off value (RO3),

a difference (RO1 – RO2) between said first roll-off value (RO1) and said second roll-off value (RO2) is a first roll-off variation (S1), and

a difference (RO2 – RO3) between said second roll-off value (RO2) and said third roll-off value (RO3) is a second roll-off variation (S2),

said first roll-off variation (S1) and said second roll-off variation (S2) satisfy the following conditions 1 and 2:

- 5 $250 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 450 \text{ \AA}$... condition 1
 $950 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 1870 \text{ \AA}$... condition 2.

2. The information recording medium glass substrate according to claim 1, wherein said information recording medium glass substrate (1G) has an inclined
10 surface (1t) having a width of 0.1 mm in the radial direction from said outer peripheral end surface (12), in a region in which said main surface (14, 15) and said outer peripheral end surface (12) intersect.

3. The information recording medium glass substrate according to any one of
15 claims 1 to 2, wherein said distance in the radial direction from said outer peripheral end surface (12) to said axis of rotation (CL) is 32.5 mm.

4. An information recording medium (1) for use in an information storage device, comprising:

20 a disk-shaped information recording medium glass substrate (1G) having a rotation center (CP); and

 a magnetic thin film layer (23) provided on a main surface of said information recording medium glass substrate (1G),

 said information recording medium glass substrate (1G) including

25 a main surface (14, 15) having said magnetic thin film layer (23) formed thereon; and

 an outer peripheral end surface (12) located at an edge of said information recording medium glass substrate (1G), wherein

 in a distance in a radial direction from said outer peripheral end surface (12) of

said main surface (14, 15) toward said rotation center (CP), when

an extension of a line between a point (B1) where said distance in the radial direction from said outer peripheral end surface (12) on said main surface (14, 15) is 1.2 mm and a point (B2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.75 mm is a reference position (BP), and an amount of deviation of any selected position on said main surface from said reference position (BP) in a direction in which an axis of rotation (CL) passing through said rotation center (CP) is a roll-off value (RO),

said roll-off value (RO) at a first radial position (P1) where said distance in the radial direction from said outer peripheral end surface (12) is 0.55 mm is a first roll-off value (RO1),

said roll-off value (RO) at a second radial position (P2) where said distance in the radial direction from said outer peripheral end surface (12) is 0.45 mm is a second roll-off value (RO2),

said roll-off value (RO) at a third radial position (P3) where said distance in the radial direction from said outer peripheral end surface (12) is 0.30 mm is a third roll-off value (RO3),

a difference (RO1 – RO2) between said first roll-off value (RO1) and said second roll-off value (RO2) is a first roll-off variation (S1), and

a difference (RO2 – RO3) between said second roll-off value (RO2) and said third roll-off value (RO3) is a second roll-off variation (S2),

said first roll-off variation (S1) and said second roll-off variation (S2) satisfy the following conditions 1 and 2:

$250 \text{ \AA} \leq \text{first roll-off variation (S1)} \leq 450 \text{ \AA}$... condition 1

$950 \text{ \AA} \leq \text{second roll-off variation (S2)} \leq 1870 \text{ \AA}$... condition 2.

5. The information recording medium according to claim 4, wherein a recording density on a single side of said main surface is 500 Gbit/inch² or more.

6. The information recording medium glass substrate according to claim 1, wherein said roll-off value (RO) at a first radial position (P1) satisfies the following condition 3:

$$-220 \text{ \AA} \leq \text{roll-off value (RO) at a first radial position (P1)} \leq 120 \text{ \AA}$$

5 ... condition 3.

7. The information recording medium glass substrate according to claim 4, wherein said roll-off value (RO) at a first radial position (P1) satisfies the following condition 3:

$$-220 \text{ \AA} \leq \text{roll-off value (RO) at a first radial position (P1)} \leq 120 \text{ \AA}$$

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... condition 3.