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| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| Migaku TAKAHASHI | 12/03/2007 |
| Masahiro OKA | 12/03/2007 |
| Akira KIKITSU | 12/03/2007 |

RECEIVING PARTY DATA

| Name: | Tohoku University | |
|-----------------|--------------------------------|--|
| Street Address: | 1-1, Katahira 2-chome, Aoba-ku | |
| City: | Sendai-shi, Miyagi-ken | |
| State/Country: | JAPAN | |

| Name: | SHOWA DENKO K.K. | |
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| Street Address: | 13-9, Shibadaimon 1-chome | |
| City: | Minato-ku, Tokyo | |
| State/Country: | JAPAN | |

| Name: | Kabushiki Kaisha Toshiba | |
|-----------------|--------------------------|--|
| Street Address: | 1-1, Shibaura 1-chome | |
| City: | Minato-ku, Tokyo | |
| State/Country: | JAPAN | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 11917088 | |

CORRESPONDENCE DATA

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PATENT REEL: 020222 FRAME: 0414 30/1.61.1 oo:

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Correspondent Name: SUGHRUE MION, PLLC

Address Line 1: 2100 Pennsylvania Avenue, NW

Address Line 4: Washington, DISTRICT OF COLUMBIA 20037-3213

ATTORNEY DOCKET NUMBER: Q88704

NAME OF SUBMITTER: Sheldon I. Landsman

Total Attachments: 3

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> PATENT REEL: 020222 FRAME: 0415

ASSIGNMENT

Whereas, I/we, (1) Migaku TAKAHASHI; (2) Masahiro OKA; and (3) Akira KIKITSU;

Address of (1) inventor: c/o Tohoku University 1-1, Katahira 2-chome, Aoba-ku, Sendai-shi, Miyagi-ken, Japan;

Address of (2) inventor: c/o SHOWA DENKO HD K.K., 5-1, Yawata Kaigan dori, Ichihara-shi, Chiba-ken,

Japan, and Address of (3) inventor: c/o Intellectual Property Division, Toshiba Corporation, 1-1, Shibaura

1-chome, Minato-ku, Tokyo, Japan, hereinafter called assignor(s), have invented certain improvements in

MAGNETIC RECORDING MEDIUM AND MAGNETIC RECORDING AND REPRODUCING APPARATUS

and executed an application for Letters Patent of the United States of America therefor on

December 3, 2007; and

Whereas, (1) Tohoku University of 1-1, Katahira 2-chome, Aoba-ku, Sendai-shi, Miyagi-ken, Japan; and (2) SHOWA DENKO K.K. of 13-9, Shibadaimon 1-chome, Minato-ku, Tokyo, Japan; and (3) Kabushiki Kaisha Toshiba of 1-1, Shibaura 1-chome, Minato-ku, Tokyo, Japan (assignee), desires to acquire the entire right, title and interest in the application and invention, and to any United States and foreign patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I/We, the above named assignor(s), hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America and all countries foreign thereto, including the rights of priority under the International Convention of Paris (1883) as amended, and I/we request the Director – U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I/we hereby agree that the assignee may apply for foreign Letters Patent on the invention and I/we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

I/We hereby authorize and request my/our attorneys SUGHRUE MION, PLLC of 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037-3213 to insert here in parentheses (Application number $\frac{11/917,088}{1}$, filed December 10, 2007 the filing date and application number of said application when known.

| Date: December 3, 2007 | si Mijaku Sakahaski | | |
|------------------------|---------------------|------------------|--|
| | Ü | Migaku TAKAHASHI | |
| Date: | s/ | | |
| | | Masahiro OKA | |
| Date: | s/ | | |
| | | Akira KIKITSU | |

PATENT REEL: 020222 FRAME: 0416

ASSIGNMENT

Whereas, I/we, (1) Migaku TAKAHASHI; (2) Masahiro OKA; and (3) Akira KIKITSU;

Address of (1) inventor: c/o Tohoku University 1-1, Katahira 2-chome, Aoba-ku, Sendai-shi, Miyagi-ken, Japan;

Address of (2) inventor: c/o SHOWA DENKO HD K.K., 5-1, Yawata Kaigan dori, Ichihara-shi, Chiba-ken,

Japan, and Address of (3) inventor: c/o Intellectual Property Division, Toshiba Corporation, 1-1, Shibaura

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I/We, the above named assignor(s), hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America and all countries foreign thereto, including the rights of priority under the International Convention of Paris (1883) as amended, and I/we request the Director – U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I/we hereby agree that the assignee may apply for foreign Letters Patent on the invention and I/we will execute without further consideration all papers deemed necessary by the assignee in connection with the United States and foreign applications when called upon to do so by the assignee.

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| Date: | s/ |
|------------------------|------------------|
| | Migaku TAKAHASHI |
| Date: December 3, 2007 | maschio Ohe |
| | Masahiro OKA |
| Date: | s/ |
| | Akira KIKITSI I |

PATENT REEL: 020222 FRAME: 0417

ASSIGNMENT

Whereas, I/we, (1) Migaku TAKAHASHI; (2) Masahiro OKA; and (3) Akira KIKITSU;

Address of (1) inventor: c/o Tohoku University 1-1, Katahira 2-chome, Aoba-ku, Sendai-shi, Miyagi-ken, Japan;

Address of (2) inventor: c/o SHOWA DENKO HD K.K., 5-1, Yawata Kaigan dori, Ichihara-shi, Chiba-ken,

Japan, and Address of (3) inventor: c/o Intellectual Property Division, Toshiba Corporation, 1-1, Shibaura

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| Date: | | s/ | |
|-------|------------------|-------------|------------------|
| | | | Migaku TAKAHASHI |
| Date: | | s/ | |
| | | | Masahiro OKA |
| Date: | December 3, 2007 | s/ Skin 2/K | |
| | | | Akira KIKITSU |

PATENT
RECORDED: 12/10/2007 REEL: 020222 FRAME: 0418