Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115 Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	Form PTO-1595 (Rev. 08/05) OMB No. 0651-0027 (exp. 6/30/2008)	-2006 U.S. DEPARTMENT OF COMMERCE United States Patent and Trademark Office			
1. Name of conveying party(les) Kazuhiro Urashima Tatsuharu Ikawa  Additional name(s) of conveying party(les) attached? Yes \ No  3. Nature of conveyance/Execution Date(s): Execution Date(s) June 12, 2006; June 8, 2006  X Assignment	1.91.04	ARRI MANN HANN HANN HANN HANN			
Name: NGK SPARK PLUG CO., LTD.	To the Director of the U.S. Patent and Trademan 500328	5122 documents or the new address(es) below.			
Tatsuharu Ikawa  Additional name(s) of conveying party(es) attached? \( \text{ Yes} \) No  Execution Date(s) June 12, 2006; June 8, 2006  Assignment		2. Name and address of receiving party(ies)			
Additional name(s) of conveying party(ies) attached? Yes \ No  3. Nature of conveyance/Execution Date(s): Execution Date(s) June 12, 2006; June 8, 2006  X Assignment		Name: NGK SPARK PLUG CO., LTD.			
Street Address:   14-18 Takatsuji-cho	Tatsuharu Ikawa	Internal Address:			
Street Address:   14-18 Takatsuji-cho					
Execution Date(s)June 12, 2006; June 8, 2006    Assignment		<u> </u>			
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State:    Joint Research Agreement   Government Interest Assignment   Executive Order 9424, Confirmatory License   Additional name(s) & address(es) attached?   Yes   Mo					
Joint Research Agreement	Security Agreement Change of Name	City: Mizuho-ku, Nagoya			
Government Interest Assignment Executive Order 9424, Confirmatory License Other Additional name(s) & address(es) attached? Yes X  4. Application or patent number(s):  A Patent Application No.(s) 11/449,107  Additional numbers attached? Yes X No  5. Name and address to whom correspondence concerning document should be mailed: Name: Mark Kusner, KUSNER & JAFFE Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights State: Ohio Zip: 44143 Phone Number: (440) 684-1095 Fax Number: (440) 684-1095 Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31, 115 Name of Person Signing Documents to be recorded (including cover sheet) should be faxed to (671) 273-0140, or mailed to:  Country: JAPAN Zip: 467-8525  Additional name(s) & address(es) attached? Yes X No  Additional name(s) & address(es) attached? Yes X No  Additional name(s) & address(es) attached? Yes X No  6. Total number of applications and patents involved: 1  7. Total fee (37 CFR 1.21(h) & 3.41) \$40.00  X Authorized to be charged to deposit account encount interest not affecting time.  B. Patent No.(s)  7. Total fee (37 CFR 1.21(h) & 3.41) \$40.00  X Authorized to be charged to deposit account encount interest not affecting time.  B. Patent No.(s)  7. Total fee (37 CFR 1.21(h) & 3.41) \$40.00  X Authorized to be charged to deposit account encount interest not affecting time.  B. Payment Information  a. Credit Card Last 4 Numbers 6537  Expiration Date  Authorized User Name Mark Kusner  28 July 2006  Date  Total number of pages including cover sheet should be faxed to (671) 273-0140, or mailed to:		State:			
Additional name(s) & address(es) attached? Yes X  4. Application or patent number(s):  A. Patent Application No.(s)  11/449,107  Additional numbers attached? Yes X No  5. Name and address to whom correspondence concerning document should be mailed:  Name: Mark Kusner, KUSNER & JAFFE  Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights  State: Ohio Zip: 44143  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  Additional name(s) & address(es) attached? Yes X  B. Patent No.(s)  6. Total number of applications and patents involved:  7. Total fee (37 CFR 1.21(h) & 3.41) \$40.00  X Authorized to be charged to deposit account Deposit account Security and Security Authorized (government interest not affecting time)  a. Credit Card Last 4 Numbers 6537  Expiration Date 10/08  b. Deposit Account Number 50-0537 (add'1 charges on Authorized User Name Mark Kusner  28 July 2006  Date  Total number of pages including cover sheet) should be faxed to (571) 273-0140, or mailed to:	Government Interest Assignment				
4. Application or patent number(s):  A. Patent Application No.(s)  Additional numbers attached? Yes XNo  5. Name and address to whom correspondence concerning document should be mailed:  Name: Mark Kusner, KUSNER & JAFFE  Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights  State: Ohio Zip: 44143  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31, 115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (671) 273-0140, or mailed to:	Executive Order 9424, Confirmatory License	Country: JAPAN Zip: 467-8525			
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5. Name and address to whom correspondence concerning document should be mailed:  Name: Mark Kusner, KUSNER & JAFFE  Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights  State: Ohio  Tip: 44143  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (671) 273-0140, or mailed to:		B. Patent No.(s)			
5. Name and address to whom correspondence concerning document should be mailed:  Name: Mark Kusner, KUSNER & JAFFE  Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights  State: Ohio Zip: 44143  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	11/449,107				
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Internal Address: Highland Place - Suite 310  Street Address: 6151 Wilson Mills Road  City: Highland Heights State: Ohio Zip: 44143  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Nome required (government interest not affecting times and compared to be charged to deposit account of the charged to be charged to deposit account of the charged to depos	_	involved: 1			
Authorized to be charged to deposit account    Street Address: 6151 Wilson Mills Road   Enclosed   None required (government interest not affecting till Republic None Required (government interest not affecting till None required (government interest not affecting till Republic None Required (government interest not affecting till None required (government interest not affecting till Republic None required (government interest not affecting till None required (government interest not affecting till Republic None required (government interest not affecting till None required (govern	Name: Mark Kusner, KUSNER & JAFFE	<b>7. Total fee</b> (37 CFR 1.21(h) & 3.41) \$40.00			
Street Address: 6151 Wilson Mills Road    City: Highland Heights	Internal Address: Highland Place - Suite 310	$\overline{\mathrm{X}}$ Authorized to be charged by credit card			
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City: Highland Heights  State: Ohio  State: Ohio  State: Ohio  State: Ohio  State: Ohio  Phone Number: (440) 684-1095  Fax Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	Street Address: 6151 Wilson Mills Road	-   ==			
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Phone Number: (440) 684-1095  Email Address: mkusner@kusnerjaffe.com  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	State: Ohio Zip: 44143				
b. Deposit Account Number 50-0537 (add'l charges on Authorized User Name Mark Kusner  9. Signature:  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	Phone Number: (440) 684-1095	Expiration Date 10/08			
9. Signature:  Mark Kusner, Reg. No. 31,115 Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  Authorized User Name Mark Kusner  28 July 2006  Total number of pages including cover sheet, attachments, and documents:  4		b. Deposit Account Number 50-0537 (add'l charges only)			
9. Signature:    Signature   28 July 2006		Authorized User Name Mark Kusner			
Signature  Mark Kusner, Reg. No. 31,115  Name of Person Signing  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:		· I			
Mark Kusner, Reg. No. 31,115 Total number of pages including cover sheet, attachments, and documents:  Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:	- June June				
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Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450	Documents to be recorded (including cover she Mail Stop Assignment Recordation Services, Director	et) should be faxed to (571) 273-0140, or mailed to: of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450			
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PATENT REEL: 018138 FRAME: 0144

	PATE	NTS ONLY	(Form	PTO-15	<b>i95</b> )
1. Name o	of conveying party(ies):				
	Mitsuo Shiraishi		<u>]</u>	Hiroshi Sum	i
			-		
			_		
	Additional name(s) of conveying	g party(ies) attached?		Yes 🔀 No	
	and address of receiving part				
	l Address:				
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City;			_		
	Additional name(s) & a	address(es) attached?		Yes 🛂 No	
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If this do	ocument is being filed togeth	ner with a new applic	cation, the	execution da	ate of the application is:
	A. Patent Application No.	(s)		B. Pate	nt No.(s)
	Δdditions	inumbers attached?		es 🍱 No	
	Additions	a numbers attached?	Y	es 🕍 IVO	

ATTACHMENT FOR RECORDATION FORM COVER SHEET

PATENT REEL: 018138 FRAME: 0145 For: U.S. Rights
For: U.S. Application

By: Inventors

## ASSIGNMENT OF INVENTION

In consideration of the payment by ASSIGNEE to ASSIGNORS of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration,

## **ASSIGNORS:**

Kazuhiro Urashima

Aichiken Kohnansi JAPAN

Nationality: Japan

Tatsuharu Ikawa

Aichiken Niwagun JAPAN

Nationality: Japan

Mitsuo Shiraishi

Aichiken Kasugaisi JAPAN

Nationality: Japan

Hiroshi Sumi Aichiken Ichinomiyasi JAPAN

Nationality: Japan

hereby sell, assign and transfer to

ASSIGNEE:

NGK Spark Plug Co., Ltd.

14-18 Takatsuji-cho

Mizuho-ku, Nagoya 467-8525

JAPAN

State or Country of Formation: Japan

and the successors, assigns and legal representatives of the ASSIGNEE the entire right, title and interest for the United States and its territorial possessions in and to any and all improvements which are disclosed in the invention entitled:

## WIRING SUBSTRATE

and which is found in (37 C.F.R. Section 3.21) U.S. Patent Application No. 11/449, 107, that was filed on June 8, 2006 and, in and to, all Letters Patent to be obtained for said invention by the above application or any continuation, division, renewal, or substitute thereof, and as to letters patent any reissue or re-examination thereof.

Assignment of Invention-page 1 of 2

PATENT REEL: 018138 FRAME: 0146

ASSIGNORS hereby covenant that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

ASSIGNORS further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNORS and will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purposes thereof.

We have hereunto set hand on the date(s) set forth below.

Date: Jun. 12, 2006

Date: Jun. 8 . 2006

Date: Jun 8. 2006

Date: Jan 8 2006

Signature of Kazuhiro Urashima

Tatsu haru I kawa

Signature of Tatsuharu Ikawa

Mitsuo Shi ka 15hi
Signature of Mitsuo Shiraishi

Flirashi Sami Signature of Hiroshi Sumi

Assignment of Invention--page 2 of 2

PATENT REEL: 018138 FRAME: 0147

RECORDED: 07/31/2006