


Client Code: QCO.259A/081043

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To the Director, U.S. Patent and Trademark Office: Please record the attached original documents or copy thereof.

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| <p>1. Name of conveying party(ies):</p> <p>1. Russell Wayne Gruhlke<br/>2. Mark Mienko</p> <p>Additional name(s) of conveying party(ies) attached?</p> <p>( ) Yes (X) No</p>   | <p>2. Name and address of receiving party(ies):</p> <p><b>Name:</b> QUALCOMM MEMS Technologies, Inc.<br/><b>Internal Address:</b><br/><b>Street Address:</b> 5775 Morehouse Drive<br/><b>City:</b> San Diego <b>State:</b> CA<br/><b>ZIP:</b> 92121</p> <p>Additional name(s) of receiving party(ies) attached?</p> <p>( ) Yes (X) No</p> |
| <p>3. Nature of conveyance:</p> <p>(X) Assignment ( ) Security Agreement<br/>( ) Merger ( ) Change of Name<br/>( ) Other:</p> <p>Execution Date:</p> <p>1 and 2: April 8, 2009</p>   | <p>4. US or PCT Application number(s) or US Patent number(s):</p> <p>(X) Patent Application No.: 12/423,354<br/>Filing Date: April 14, 2009</p> <p>Additional numbers attached?</p> <p>( ) Yes (X) No</p>   |
| <p>5. Party to whom correspondence concerning document should be mailed:</p> <p><b>Customer No.</b> 59,747</p> <p><b>Address:</b> Knobbe, Martens, Olson &amp; Bear, LLP<br/>2040 Main Street, 14<sup>th</sup> Floor<br/>Irvine, CA 92614</p> <p><b>Return Fax:</b> (949) 760-9502</p> <p><b>Attorney's Docket No.:</b> QCO.259A/081043</p>  | <p>6. Total number of applications and patents involved: 1</p>  |
| <p>7. Total fee (37 CFR 1.21(h)): \$40</p> <p>(X) Authorized to be charged to deposit account</p>  | <p>8. Deposit account number: 11-1410</p> <p>Please charge this account for any additional fees which may be required, or credit any overpayment to this account.</p>   |
| <p>9. Statement and signature.</p> <p>To the best of my knowledge and belief, the foregoing information is true and correct, and any attached copy is a true copy of the original document.</p> <p><u>Gregory A. Hermanson</u><br/>Name of Person Signing</p> <p>53,018<br/>Registration No.</p> <p><br/>Signature</p> <p><u>April 14, 2009</u><br/>Date</p> <p>Total number of pages including cover sheet, attachments and document: 3</p> |   |

Documents transmitted via Facsimile to be recorded with required cover sheet information to:

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**PATENT**  
**REEL: 022530 FRAME: 0793**

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Application No.: Unassigned  
Filing Date: Herewith

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### ASSIGNMENT

WHEREAS, we, Russell Wayne Gruhlke, a U.S. citizen, residing at 1820 View Drive, Milpitas, CA 95035 and Mark Mienko, a U.S. citizen, residing at 185 Estancia Drive, # 316, San Jose, CA 95134, have invented certain new and useful improvements in a LIGHT WITH BI-DIRECTIONAL PROPAGATION for which we have caused to be filed an application for Letters Patent in the United States; and we hereby authorize and request the attorneys of Knobbe, Martens, Olson & Bear, LLP, Customer No. 59,747, to insert here in parentheses (Application Number 12/423,354, filed 4/14/09) the filing date and application number of said application when known;

AND WHEREAS, QUALCOMM MEMS Technologies, Inc. (hereinafter "ASSIGNEE"), a Delaware corporation, with its principal place of business at 5775 Morehouse Drive, San Diego, California 92121, desires to acquire the entire right, title, and interest in and to said improvements and said Application;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we, the inventors, do hereby sell, assign, transfer and set over, unto the ASSIGNEE, its successors, legal representatives and assigns, the entire right, title, and interest throughout the world in said improvements, including the Application, any improvements made thereto, and any utility (non-provisional) application(s) claiming priority thereto that have been or may hereafter be filed; such filings including divisions, renewals and continuations thereof, and all Letters Patent of the United States which may be granted thereon and all reissues and extensions thereof, and all rights of priority under International Conventions and applications for Letters Patent which may hereafter be filed for said improvements in any country or countries foreign to the United States, and all Letters Patent which may be granted for said improvements in any country or countries foreign to the United States and all extensions, renewals and reissues thereof; and we hereby authorize and request the Commissioner for Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE DO HEREBY sell, assign, transfer, and convey to ASSIGNEE, its successors, legal representatives, and assigns all claims for damages and all remedies arising out of any violation of the rights assigned hereby that may have accrued prior to the date of assignment to ASSIGNEE, or may accrue hereafter, including, but not limited to, the right to sue for, collect, and retain damages for past infringements of the said Letters Patent, before or after issuance.

AND WE HEREBY covenant and agree that we will communicate to the ASSIGNEE, its successors, legal representatives and assigns, any facts known to us respecting said improvements, and testify in any legal proceeding, assist in the preparation of any other provisional or non-provisional applications relating to the improvements, sign all lawful papers,

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execute and make all rightful oaths and/or declarations in connection with the Application including any improvements made thereto, any utility (non-provisional) application(s) filed therefrom, and any continuing application(s) filed from aforementioned utility application(s), and generally do everything possible to aid the ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said improvements in all countries.

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 8<sup>th</sup> day of April, 2009.

Russell Wayne Grublke  
Russell Wayne Grublke

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 8<sup>th</sup> day of April, 2009.

Mark Mienko  
Mark Mienko

IN TESTIMONY WHEREOF, acknowledged by QUALCOMM MEMS Technologies, Inc. this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

QUALCOMM MEMS Technologies, Inc.

Name:  
Title:

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