

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
CONVEYING PARTY DATA									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Muhammad A. Afzal</td> <td>10/31/2011</td> </tr> <tr> <td>Gregory M. Nulty</td> <td>10/28/2011</td> </tr> <tr> <td>Timothy J. Vitanza</td> <td>10/31/2011</td> </tr> </tbody> </table>		Name	Execution Date	Muhammad A. Afzal	10/31/2011	Gregory M. Nulty	10/28/2011	Timothy J. Vitanza	10/31/2011
Name	Execution Date								
Muhammad A. Afzal	10/31/2011								
Gregory M. Nulty	10/28/2011								
Timothy J. Vitanza	10/31/2011								
RECEIVING PARTY DATA									
Name:	Tollgrade Communications, Inc.								
Street Address:	3120 Unionville Road, Suite 400								
City:	Cranberry Township								
State/Country:	PENNSYLVANIA								
Postal Code:	16066								
PROPERTY NUMBERS Total: 1									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13279627</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13279627				
Property Type	Number								
Application Number:	13279627								
CORRESPONDENCE DATA									
Fax Number:	(412)945-5933								
Phone:	412-471-8815								
Email:	assignments@webblaw.com								
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>									
Correspondent Name:	The Webb Law Firm								
Address Line 1:	One Gateway Center								
Address Line 2:	420 Fort Duquesne Blvd., Suite 1200								
Address Line 4:	Pittsburgh, PENNSYLVANIA 15222								
ATTORNEY DOCKET NUMBER:	1974-113761								
NAME OF SUBMITTER:	Richard L. Byrne								
Total Attachments: 10									

OP \$40.00 13279627

source=113761Assignment#page1.tif
source=113761Assignment#page2.tif
source=113761Assignment#page3.tif
source=113761Assignment#page4.tif
source=113761Assignment#page5.tif
source=113761Assignment#page6.tif
source=113761Assignment#page7.tif
source=113761Assignment#page8.tif
source=113761Assignment#page9.tif
source=113761Assignment#page10.tif

RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)

Muhammad A. Afzal
Gregory M. Nulty
Timothy J. Vitanza

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)

Name: Tollgrade Communications, Inc.

Internal Address: _____

Street Address: 3120 Unionville Road, Suite 400

City: Cranberry Township

State: PA

Country: US Zip: 16066

Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance/Execution Date(s):

Execution Date(s) Oct. 31, 2011; Oct. 28, 2011; Oct. 31, 2011

- Assignment Merger
- Security Agreement Change of Name
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Other _____

4. Application or patent number(s):

This document is being filed together with a new application.

A. Patent Application No.(s)
13/279,627

B. Patent No.(s)

Additional numbers attached? Yes No

5. Name and address to whom correspondence concerning document should be mailed:

Name: Richard L. Byrne

Internal Address: The Webb Law Firm

Street Address: One Gateway Center
420 Ft. Duquesne Blvd., Ste 1200

City: Pittsburgh

State: PA Zip: 15222

Phone Number: 412-471-8815

Fax Number: 412-945-5933

Email Address: assignments@webblaw.com

6. Total number of applications and patents involved: 1**7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40**

- Authorized to be charged by credit card
- Authorized to be charged to deposit account
- Enclosed
- None required (government interest not affecting title)

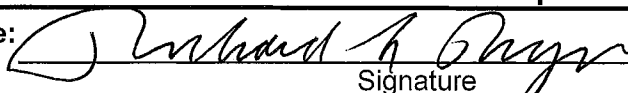
8. Payment Information

a. Credit Card Last 4 Numbers 4775
Expiration Date 05/2012

b. Deposit Account Number 23-0650

Authorized User Name _____

9. Signature:


Signature

December 16, 2011

Date

Richard L. Byrne, Registration No. 28,498

Name of Person Signing

Total number of pages including cover sheet, attachments, and documents:

10

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

ASSIGNMENT

WHEREAS, as a below named inventor, I have invented certain new and useful improvements in

INTEGRATED ETHERNET OVER COAXIAL CABLE, STB,
AND PHYSICAL LAYER TEST AND MONITORING

(Invention Title)

for which a United States Provisional Patent application was filed on _____ (mm/dd/yyyy) and bears Application Number _____ (hereinafter "said application").

AND/OR

for which I have this day executed an application for a United States Patent (hereinafter "said application").

AND/OR

for which an application for a United States Patent was filed on 10/24/2011 (mm/dd/yyyy) and bears Application Number 13/279,627 (hereinafter "said application").

AND/OR

for which an international patent application was filed under the Patent Cooperation Treaty on _____ (mm/dd/yyyy), bearing Application No. _____ (hereinafter "said application").

AND, WHEREAS, Tollgrade Communications, Inc., a corporation of State of Pennsylvania, having a place of business at 3120 Unionville Road, Suite 400, Cranberry Township, Pennsylvania 16066, hereinafter called the "assignee", is desirous of acquiring the entire right, title, and interest in and to said application and the inventions and improvements therein disclosed.


NOW, THEREFORE, for good and valuable consideration paid to me by said assignee, the receipt of which is hereby acknowledged, I as the inventor or as one of the inventors, hereinafter the assignor(s), do hereby assign, sell and transfer unto said assignee the full and exclusive right, title and interest in and to said application and the inventions and improvements therein disclosed for the United States and all foreign countries and any Letters Patent which may issue therefor in the United States and all foreign countries and all divisions, reissues, continuations, continuations-in-part, renewals and/or extensions thereof. Such assignment extends to the full ends of the terms of these applications and patents as fully and entirely as the same would have been held and enjoyed by me had this Assignment not been made.

I covenant that I am the lawful owner(s) of said application, inventions and improvements, that the same are unencumbered, that no license has been granted to make, use or vend the said inventions or improvements or any of them, and that I have the full right to make this Assignment.

And for the consideration aforesaid, I agree individually and, if applicable, jointly that I will communicate to said assignee or the representatives thereof any facts known to me

respecting said inventions and improvements, and will, upon request but without expense to me, testify in any legal proceedings, sign all lawful papers, execute all divisional, reissue, continuation, continuation-in-part, renewal and/or extension applications, make all rightful oaths, and generally do all other and further lawful acts deemed necessary or expedient by said assignee or by counsel for said assignee to assist or enable said assignee to obtain and enforce full benefits from the rights and interests herein assigned. This Assignment shall be binding upon my heirs, executors, administrators and/or assigns, and shall inure to the benefit of the heirs, executors, administrators, successors and/or assigns, as the case may be, of said assignee.

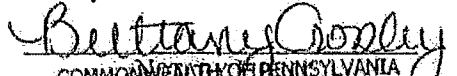
1. FULL NAME OF ASSIGNOR: Muhammad A. Afzal RESIDENCE: Wexford, Pennsylvania

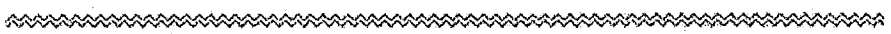
EXECUTED this 31 day of Oct, 2011 
SIGNATURE

STATE of Pennsylvania
COUNTY of Butler

On this 31st day of October, in the year 2011, before me Brittany Crosby
DAY MONTH YEAR NOTARY PUBLIC NAME
a notary public, personally appeared Muhammad A. Afzal
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.


COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Brittany Crosby, Notary Public
Cranberry Twp., Butler County
My Commission Expires Sept. 8, 2014
S
E
A
L



Checked Box indicates 1 additional page(s) for inventor signatures.

2. FULL NAME OF ASSIGNOR: Gregory M. Nulty RESIDENCE: Reston, Virginia

EXECUTED this ____ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this ____ day of _____, in the year _____, before me _____,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared _____,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



3. FULL NAME OF ASSIGNOR: Timothy J. Vitanza RESIDENCE: Mars, Pennsylvania

EXECUTED this ____ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this ____ day of _____, in the year _____, before me _____,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared _____,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



ASSIGNMENT

WHEREAS, as a below named inventor, I have invented certain new and useful improvements in

**INTEGRATED ETHERNET OVER COAXIAL CABLE, STB,
AND PHYSICAL LAYER TEST AND MONITORING**

(Invention Title)

for which a United States Provisional Patent application was filed on _____ (mm/dd/yyyy) and bears Application Number _____ (hereinafter "said application").

AND/OR

for which I have this day executed an application for a United States Patent (hereinafter "said application").

AND/OR

for which an application for a United States Patent was filed on 10/24/2011 (mm/dd/yyyy) and bears Application Number 13/279,627 (hereinafter "said application").

AND/OR

for which an international patent application was filed under the Patent Cooperation Treaty on _____ (mm/dd/yyyy), bearing Application No. _____ (hereinafter "said application").

AND, WHEREAS, Tollgrade Communications, Inc., a corporation of State of Pennsylvania, having a place of business at 3120 Unionville Road, Suite 400, Cranberry Township, Pennsylvania 16066, hereinafter called the "assignee", is desirous of acquiring the entire right, title, and interest in and to said application and the inventions and improvements therein disclosed.

NOW, THEREFORE, for good and valuable consideration paid to me by said assignee, the receipt of which is hereby acknowledged, I as the inventor or as one of the inventors, hereinafter the assignor(s), do hereby assign, sell and transfer unto said assignee the full and exclusive right, title and interest in and to said application and the inventions and improvements therein disclosed for the United States and all foreign countries and any Letters Patent which may issue therefor in the United States and all foreign countries and all divisions, reissues, continuations, continuations-in-part, renewals and/or extensions thereof. Such assignment extends to the full ends of the terms of these applications and patents as fully and entirely as the same would have been held and enjoyed by me had this Assignment not been made.

I covenant that I am the lawful owner(s) of said application, inventions and improvements, that the same are unencumbered, that no license has been granted to make, use or vend the said inventions or improvements or any of them, and that I have the full right to make this Assignment.

And for the consideration aforesaid, I agree individually and, if applicable, jointly that I will communicate to said assignee or the representatives thereof any facts known to me

respecting said inventions and improvements, and will, upon request but without expense to me, testify in any legal proceedings, sign all lawful papers, execute all divisional, reissue, continuation, continuation-in-part, renewal and/or extension applications, make all rightful oaths, and generally do all other and further lawful acts deemed necessary or expedient by said assignee or by counsel for said assignee to assist or enable said assignee to obtain and enforce full benefits from the rights and interests herein assigned. This Assignment shall be binding upon my heirs, executors, administrators and/or assigns, and shall inure to the benefit of the heirs, executors, administrators, successors and/or assigns, as the case may be, of said assignee.

I, FULL NAME OF ASSIGNOR; Muhammad A. Afzal RESIDENCE: Wexford, Pennsylvania

EXECUTED this _____ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this _____ day of _____, in the year _____, before me _____,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared _____,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



Checked Box indicates 1 additional page(s) for inventor signatures.

2. FULL NAME OF ASSIGNOR: Gregory M. Nully RESIDENCE: Reston, Virginia

EXECUTED this 28 day of OCT, 2011

[Signature]
SIGNATURE

STATE of Virginia)

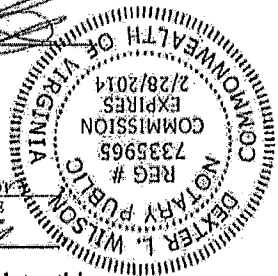
COUNTY of Fairfax)

On this 28 day of OCT, in the year 2011, before me Dexter L. Wilson
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared GREGORY M NULLY
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

[Signature]
NOTARY PUBLIC



S
E
A
L



3. FULL NAME OF ASSIGNOR: Timothy J. Vitanza RESIDENCE: Mars, Pennsylvania

EXECUTED this ___ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this ___ day of _____, in the year _____, before me _____,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared _____,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



ASSIGNMENT

WHEREAS, as a below named inventor, I have invented certain new and useful improvements in

INTEGRATED ETHERNET OVER COAXIAL CABLE, STB,
AND PHYSICAL LAYER TEST AND MONITORING

(Invention Title)

for which a United States Provisional Patent application was filed on _____ (mm/dd/yyyy) and bears Application Number _____ (hereinafter "said application").

AND/OR

for which I have this day executed an application for a United States Patent (hereinafter "said application").

AND/OR

for which an application for a United States Patent was filed on 10/24/2011 (mm/dd/yyyy) and bears Application Number 13/279,627 (hereinafter "said application").

AND/OR

for which an international patent application was filed under the Patent Cooperation Treaty on _____ (mm/dd/yyyy), bearing Application No. _____ (hereinafter "said application").

AND, WHEREAS, Tollgrade Communications, Inc., a corporation of State of Pennsylvania, having a place of business at 3120 Unionville Road, Suite 400, Cranberry Township, Pennsylvania 16066, hereinafter called the "assignee", is desirous of acquiring the entire right, title, and interest in and to said application and the inventions and improvements therein disclosed.

NOW, THEREFORE, for good and valuable consideration paid to me by said assignee, the receipt of which is hereby acknowledged, I as the inventor or as one of the inventors, hereinafter the assignor(s), do hereby assign, sell and transfer unto said assignee the full and exclusive right, title and interest in and to said application and the inventions and improvements therein disclosed for the United States and all foreign countries and any Letters Patent which may issue therefor in the United States and all foreign countries and all divisions, reissues, continuations, continuations-in-part, renewals and/or extensions thereof. Such assignment extends to the full ends of the terms of these applications and patents as fully and entirely as the same would have been held and enjoyed by me had this Assignment not been made.

I covenant that I am the lawful owner(s) of said application, inventions and improvements, that the same are unencumbered, that no license has been granted to make, use or vend the said inventions or improvements or any of them, and that I have the full right to make this Assignment.

And for the consideration aforesaid, I agree individually and, if applicable, jointly that I will communicate to said assignee or the representatives thereof any facts known to me

respecting said inventions and improvements, and will, upon request but without expense to me, testify in any legal proceedings, sign all lawful papers, execute all divisional, reissue, continuation, continuation-in-part, renewal and/or extension applications, make all rightful oaths, and generally do all other and further lawful acts deemed necessary or expedient by said assignee or by counsel for said assignee to assist or enable said assignee to obtain and enforce full benefits from the rights and interests herein assigned. This Assignment shall be binding upon my heirs, executors, administrators and/or assigns, and shall inure to the benefit of the heirs, executors, administrators, successors and/or assigns, as the case may be, of said assignee.

1. FULL NAME OF ASSIGNOR: Muhammad A. Afzal RESIDENCE: Wexford, Pennsylvania

EXECUTED this ____ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this ____ day of _____, in the year _____, before me _____,

DAY

MONTH

YEAR

NOTARY PUBLIC NAME

a notary public, personally appeared _____,

NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



Checked Box indicates 1 additional page(s) for inventor signatures.

2. FULL NAME OF ASSIGNOR: Gregory M. Nulty RESIDENCE: Reston, Virginia

EXECUTED this _____ day of _____, 201__

SIGNATURE

STATE of _____)

COUNTY of _____)

On this _____ day of _____, in the year _____, before me _____,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared _____,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

NOTARY PUBLIC

S
E
A
L



3. FULL NAME OF ASSIGNOR: Timothy J. Vitanza RESIDENCE: Mars, Pennsylvania

EXECUTED this 31 day of OCTOBER, 2011

Timothy Vitanza
SIGNATURE

STATE of PA)

COUNTY of Butler)

On this 31 day of Oct, in the year 2011, before me Christine L. Young,
DAY MONTH YEAR NOTARY PUBLIC NAME

a notary public, personally appeared Timothy J. Vitanza,
NAME OF DOCUMENT SIGNER

proved on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument, and acknowledged he/she executed the same. Witness my hand and official seal.

Christine L. Young
NOTARY PUBLIC

S
E
A
L

