

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
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EPAS ID: PAT4696161

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT	
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT	
<b>CONVEYING PARTY DATA</b>		
	<b>Name</b>	<b>Execution Date</b>
	TW TELECOM HOLDINGS, INC.	11/20/2014
<b>RECEIVING PARTY DATA</b>		
<b>Name:</b>	LEVEL 3 COMMUNICATIONS, LLC	
<b>Street Address:</b>	1025 ELDORADO BLVD.	
<b>City:</b>	BROOMFIELD	
<b>State/Country:</b>	COLORADO	
<b>Postal Code:</b>	80021	
<b>PROPERTY NUMBERS Total: 1</b>		
	<b>Property Type</b>	<b>Number</b>
	Application Number:	15814747
<b>CORRESPONDENCE DATA</b>		
<b>Fax Number:</b>	(720)888-5619	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
<b>Email:</b>	kathleen.mcinnish@level3.com	
<b>Correspondent Name:</b>	LEVEL 3 COMMUNICATIONS, LLC	
<b>Address Line 1:</b>	1025 ELDORADO BLVD.	
<b>Address Line 4:</b>	BROOMFIELD, COLORADO 80021	
<b>ATTORNEY DOCKET NUMBER:</b>	0511-US-C3	
<b>NAME OF SUBMITTER:</b>	JONATHAN C. SIEKMANN	
<b>SIGNATURE:</b>	/Jonathan C. Siekmann/	
<b>DATE SIGNED:</b>	11/18/2017	
<b>Total Attachments: 4</b>		
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## PATENT ASSIGNMENT AND LICENSE AGREEMENT

This Assignment and License Agreement (this "Agreement") is made and entered into on November 20, 2014 (the "Effective Date") by and between tw telecom holdings, inc., a Delaware corporation ("Assignor"), and Level 3 Communications, LLC, a limited liability company organized and existing under the laws of the state of Delaware ("Assignee") (collectively, "the parties").

WHEREAS, Assignor is the owner of the United States patents and pending patent applications listed on the attached Schedule A and foreign counterparts thereof, any inventions described therein, all continuing and provisional applications, reissues, divisions, continuations, continuations in part, extensions, renewals and reexaminations thereof and any other form of industrial property protection relating to the foregoing in the United States and throughout the world to the full end of the term or terms for which any letters patents based on any of the foregoing issue (collectively, "Patents");

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and subject to any rights and licenses granted to third parties on or before the effective date hereof:

(1) Assignment. Assignor hereby sells, assigns, conveys, transfers and sets over unto Assignee, its successors and assigns, all of Assignor's right, title and interest in, to and under any and all United States and foreign patents and patent applications owned, in either sole or joint capacity, by Assignor as of the Effective Date including, but not limited to, the Patents, and the right to sue for and obtain past, present, and future damages (including, without limitation, lost profits, reasonable royalties and any available statutory remedies) and unjust enrichment and/or restitution, for past, present and future claims, suits and actions, known and unknown, against third parties arising in connection with infringement of any of the Patents prior to the date of this Agreement (collectively, "the Patent Rights"), the Patent Rights to be held and enjoyed by Assignee for its own use and benefit, and for the use and benefit of its successors, assigns or other legal representatives, fully and entirely as if the Patent Rights would have been held and enjoyed by Assignor if this Agreement had not been made.

Assignor hereby covenants and agrees with Assignee, its successors and assigns, that Assignor will not execute any writing or do any act whatsoever conflicting with this Agreement, and that Assignor or its successors and assigns will, at any time upon request, without further or additional consideration, execute such additional writings and do such additional acts as Assignee, its successors and assigns, may deem necessary or desirable to perfect Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, divisional, reissued or extended Letters Patent of the United States, or of any and all foreign countries on the Patents, and will give testimony in any proceedings or transactions involving the Patents.

Assignee hereby accepts and assumes the Patent Rights and any obligations arising thereunder. Assignee shall be solely responsible for all actions and all costs whatsoever, including past, present, and future attorneys' fees, associated with the

continuous prosecution and the maintenance and enforcement of any of the Patent Rights for which Assignor would have been responsible if this Agreement had not been made.

(2) License. Assignee hereby grants Assignor and all of its present and future affiliates a royalty-free, non-exclusive, fully paid-up, non-sublicensable, worldwide right and license to exercise and otherwise exploit the Patents, the term of such license to continue until revoked by Assignee at Assignee's sole discretion and by written notification to Assignor. As used herein, the term "affiliate" of Assignor shall mean a business entity that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, Assignor as of the Effective Date or any time thereafter.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned have executed this Patent Assignment and License Agreement as of the date first above written.

**TW TELECOM HOLDINGS, INC.**

By: 

Name: DAVID D. WINK

Title: VIC President

**LEVEL 3 COMMUNICATIONS, LLC**

By: 

Name: DAVID D. WINK

Title: VIC President

# SCHEDULE A

## UNITED STATES PATENTS, UNITED STATES PATENT APPLICATIONS AND INTERNATIONAL APPLICATIONS THAT DESIGNATE THE UNITED STATES

Application No.	Filing Date	Patent No.	Issue Date
14/016,969	9/3/2013	8,611,355	12/17/2013
14/105,977	12/13/2013		
14/047,523	10/7/2013	8,724,626	5/13/2014
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