

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM605044

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT		
<b>NATURE OF CONVEYANCE:</b>	U.S. Assignment of and Amendment to Intellectual Property Security Agreements		
<b>CONVEYING PARTY DATA</b>			
<b>Name</b>	<b>Formerly</b>	<b>Execution Date</b>	<b>Entity Type</b>
Jefferies Finance LLC		10/23/2020	Limited Liability Company:
LIGADO NETWORKS LLC		10/23/2020	Limited Liability Company: DELAWARE
ATC TECHNOLOGIES, LLC		10/23/2020	Limited Liability Company: DELAWARE
<b>RECEIVING PARTY DATA</b>			
<b>Name:</b>	U.S. BANK NATIONAL ASSOCIATION		
<b>Street Address:</b>	425 Walnut Street		
<b>City:</b>	Cincinnati		
<b>State/Country:</b>	OHIO		
<b>Postal Code:</b>	45202		
<b>Entity Type:</b>	Corporation: OHIO		
<b>PROPERTY NUMBERS Total: 8</b>			
<b>Property Type</b>	<b>Number</b>	<b>Word Mark</b>	
<b>Registration Number:</b>	2007216	MSAT	
<b>Registration Number:</b>	3680387	SMART	
<b>Registration Number:</b>	4572620	LIGHTSQUARED	
<b>Registration Number:</b>	4564387	LIGHTSQUARED	
<b>Registration Number:</b>	5030378	LIGADO	
<b>Registration Number:</b>	5030380	LIGADO NETWORKS	
<b>Registration Number:</b>	5036082	LIGADO NETWORKS	
<b>Registration Number:</b>	5036073	LIGADO NETWORKS MAKING STRONGER CONNECTI	
<b>CORRESPONDENCE DATA</b>			
<b>Fax Number:</b>	4142770656		
<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>Phone:</b>	14142716560		
<b>Email:</b>	mkeipdocket@michaelbest.com		
<b>Correspondent Name:</b>	Michael Best & Friedrich LLP		
<b>Address Line 1:</b>	790 N. Water Street		

TRADEMARK

**Address Line 2:** Suite 2500  
**Address Line 4:** Milwaukee, WISCONSIN 53202

**NAME OF SUBMITTER:** Jodi Anderson

**SIGNATURE:** /jodi anderson/

**DATE SIGNED:** 10/26/2020

**Total Attachments: 18**

source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page1.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page2.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page3.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page4.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page5.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page6.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page7.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page8.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page9.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page10.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page11.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page12.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page13.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page14.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page15.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page16.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page17.tif  
source=Ligado - U.S. Assignment of and Amendment to IP Security Agreement (1.5L) Executed (002)#page18.tif

**U.S. ASSIGNMENT OF AND AMENDMENT TO  
INTELLECTUAL PROPERTY SECURITY AGREEMENTS**

This U.S. ASSIGNMENT OF AND AMENDMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENTS (this “Agreement”) dated as of October 23, 2020, is by and among U.S. BANK NATIONAL ASSOCIATION (“U.S.” or, in its capacity as successor Collateral Agent (as defined below) under the Credit Agreement (as defined below) and the other Loan Documents (as defined therein), the “Successor Collateral Agent”), JEFFERIES FINANCE LLC (“Jefferies”), in its capacity as existing Collateral Agent under the Credit Agreement and the other Loan Documents (in such capacity, the “Existing Collateral Agent”), Ligado Networks LLC, a Delaware limited liability company, (the “Borrower”), and ATC Technologies, LLC (a Guarantor, and together with Borrower, the “Grantors”).

**WHEREAS**, the Borrower, the Guarantors from time to time party thereto, the Lenders from time to time party thereto and Jefferies, as administrative agent and collateral agent (in such capacities, the “Administrative Agent”) entered into that certain Loan Agreement dated as of May 27, 2020 (as amended by that certain Amendment No. 1, dated as of October 23, 2020 and as further as amended, amended and restated, supplemented or otherwise modified from time to time, the “Credit Agreement”; capitalized terms used herein without definition shall have the meanings attributed to such terms in the Credit Agreement);

**WHEREAS**, Jefferies, as Existing Collateral Agent, is the holder of certain security interests in the intellectual property included in the Collateral (the “IP Collateral”), such security interests having been granted or assigned to Jefferies from time to time pursuant to that certain Security Agreement, dated as of May 27, 2020 (as may be amended, amended and restated, supplemented or otherwise modified from time to time, the “Security Agreement”), made by the Grantors party thereto from time to time in favor of Jefferies as Collateral Agent for the Secured Parties, and those certain security agreements identified on Schedule 1 (the “IP Security Agreements”);

**WHEREAS**, pursuant to the Successor Collateral Agent Agreement and Amendment to Security Agreement dated as of October 23, 2020 (“Successor Collateral Agent Agreement”), (i) Jefferies resigned as Collateral Agent, and U.S. was appointed as successor Administrative Agent, (ii) Jefferies assigned to U.S. Bank each of the security interests and Liens granted to Jefferies under the Security Documents, and (iii) the Credit Agreement and the other Loan Documents were amended to replace all references to Jefferies, as Collateral Agent under the Credit Agreement and the other Loan Documents, with references to U.S. Bank;

**WHEREAS**, in connection with the Successor Collateral Agent Agreement, Jefferies desires to assign all of its security interest and Liens granted in and to the IP Collateral arising under the Loan Documents and the IP Security Agreements to U.S. Bank; and

**WHEREAS**, Borrower is willing to execute and deliver this Agreement in order to induce the Lenders to make additional Loans and as consideration for Loans previously made.

**NOW, THEREFORE**, in consideration of the mutual and dependent promises and undertakings set forth herein, for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and with the intention of being legally bound hereby, the parties hereto hereby covenant and agree as follows:

1. Incorporation of Recitals. The above recitals are incorporated into this Agreement as if fully set forth herein.
2. Assignment. Pursuant to the Successor Collateral Agent Agreement, the Existing Collateral Agent hereby irrevocably transfers, assigns, grants, and conveys, without any representation, warranty or recourse, to the Successor Collateral Agent all of the Existing Collateral Agent's security interest and Liens granted in and to the IP Collateral arising under the Loan Documents, including, without limitation, the IP Collateral identified on Schedules 2-4 hereto, the IP Security Agreements, and all security interest filings and notices relating to the IP Collateral associated with the Loan Documents, together with any rider, addendum, exhibit, schedule and attachment thereto. For the avoidance of doubt and notwithstanding anything herein to the contrary, following the date hereof, Jefferies will continue to serve as administrative agent under the Credit Agreement and the other Loan Documents and all provisions hereof applicable to Jefferies in such capacity shall remain in full force and effect.
3. Amendment. Each reference in the IP Security Agreements to "Jefferies Finance LLC" is hereby deemed amended to reference "U.S. Bank National Association".
4. Grant of Security Interest. To the extent not already granted by the IP Security Agreements, as security for the payment or performance, as the case may be, in full of the Secured Obligations, the Grantors hereby grant to the Successor Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, a security interest (the "Security Interest") in all of such Grantors' right, title and interest in, to and under the United States patents and patent applications, trademark registrations and applications, and copyright registrations and applications listed on Schedules 2-4 hereto, excluding only United States intent-to-use trademark applications to the extent that, and solely during the period in which, the grant, attachment, or enforcement of a security interest therein would, under applicable federal law, impair the registrability of such applications or the validity or enforceability of registrations issuing from such applications.
5. Security Agreement. The Security Interest granted to and assumed by the Successor Collateral Agent herein is granted in furtherance, and not in limitation, of the security interests granted to the Collateral Agent pursuant to the Security Agreement. The Grantors hereby acknowledge and affirm that the rights and remedies of the Collateral Agent with respect to the IP Collateral are more fully set forth in the Security Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Security Agreement, the terms of the Security Agreement shall govern.
6. Cooperation. The parties hereto hereby authorize the Successor Collateral Agent to record this Agreement causing U.S. Bank to become the secured party and the Collateral Agent under the IP Security Agreements as amended hereby. Grantors authorize the Commissioner for Patents, the Commissioner for Trademarks, the Register of Copyrights, and any other government officials to record and register this Agreement upon request by the Collateral Agent.
7. Successors and Assigns. This Agreement is binding upon, and shall inure to the benefit of, the parties hereto and their respective successors and assigns.
8. No Novation. The parties hereto agree that this Agreement shall not constitute an amendment to any of the Loan Documents and shall not constitute a novation in any manner whatsoever.

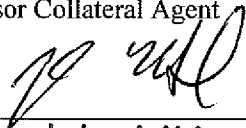
9. Counterparts; Delivery. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original and it shall not be necessary in making proof of this Amendment to produce or account for more than one such counterpart. Delivery of an executed counterpart of this Agreement by facsimile or other electronic imaging means shall be effective as an original.

10. Governing Law. This Agreement shall be deemed to be a contract made under, and for all purposes shall be construed in accordance with, the laws of the State of New York.

**[SIGNATURE PAGES FOLLOW]**

**IN WITNESS WHEREOF**, the following have executed this U.S. ASSIGNMENT OF AND AMENDMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENTS on the date first above written.

**U.S. BANK NATIONAL ASSOCIATION**  
as Successor Collateral Agent

By:   
Name: Joshua A. Hahn  
Title: Vice President

**JEFFERIES FINANCE LLC**  
as Existing Collateral Agent

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**LIGADO NETWORKS LLC**  
as the Borrower

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**ATC TECHNOLOGIES, LLC**  
as Grantor

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

IN WITNESS WHEREOF, the following have executed this U.S. ASSIGNMENT OF AND AMENDMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENTS on the date first above written.

**U.S. BANK NATIONAL ASSOCIATION**  
as Successor Collateral Agent

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**JEFFERIES FINANCE LLC**  
as Existing Collateral Agent

By: Paul Chisholm  
Name: Paul Chisholm  
Title: Managing Director

**LIGADO NETWORKS LLC**  
as the Borrower

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**ATC TECHNOLOGIES, LLC**  
as Grantor

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

IN WITNESS WHEREOF, the following have executed this U.S. ASSIGNMENT OF AND AMENDMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENTS on the date first above written.

**U.S. BANK NATIONAL ASSOCIATION**  
as Successor Collateral Agent

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**JEFFERIES FINANCE LLC**  
as Existing Collateral Agent

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**LIGADO NETWORKS LLC**  
as the Borrower

By: Eric Harrington  
Name: Eric Harrington  
Title: Chief Financial Officer

**ATC TECHNOLOGIES, LLC**  
as Grantor

By: Eric Harrington  
Name: Eric Harrington  
Title: Chief Financial Officer



**Schedule 1**

**IP SECURITY AGREEMENTS**

1. Patent Security Agreement, dated as of May 27, 2020, made by ATC Technologies, LLC in favor of Jefferies Finance LLC as Collateral Agent for the Secured Parties
2. Trademark Security Agreement, dated as of May 27, 2020 made by the Borrower in favor of Jefferies Finance LLC as Collateral Agent for the Secured Parties

Schedule 2

U.S. PATENTS AND PATENT APPLICATIONS

**Patent Registrations:**

**REEL: 053755 FRAME: 0916**

<b>Title</b>	<b>Owner</b>	<b>Patent No.</b>	<b>Issue Date</b>
Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum	ATC Technologies, LLC	6684057	1/27/2004
Filters for Combined Radiotelephone/GPS Terminals	ATC Technologies, LLC	6785543	8/31/2004
Wireless Communications Systems and Methods Using Satellite-Linked Remote Terminal Interface Subsystems	ATC Technologies, LLC	6856787	2/15/2005
System and Method of Terrestrial Frequency Reuse Using Signal Attenuation and Dynamic	ATC Technologies, LLC	6859652	2/22/2005
Systems and Methods for Handover Between Space Based and Terrestrial Radioterminal Communications, and for Monitoring Terrestrially Reused Satellite Frequencies at a Radioterminal to Reduce Potential Interference	ATC Technologies, LLC	6879829	4/12/2005
Coordinated Satellite-Terrestrial Frequency Reuse	ATC Technologies, LLC	6892068	5/10/2005
Systems and Methods for Reducing Satellite Feeder Link Bandwidth/Carriers in Cellular Satellite Systems	ATC Technologies, LLC	6937857	8/30/2005
Spatial Guardbands for Terrestrial Reuse of Satellite Frequencies	ATC Technologies, LLC	6999720	2/14/2006
Space-Based Network Architectures for Satellite Radiotelephone Systems	ATC Technologies, LLC	7006789	2/28/2006
Additional Systems and Methods for Monitoring Terrestrially Reused Satellite Frequencies to Reduce Potential Interference	ATC Technologies, LLC	7031702	4/18/2006
Systems and Methods for Monitoring Terrestrially Reused Satellite Frequencies to Reduce Potential Interference	ATC Technologies, LLC	7039400	5/2/2006
Methods and Systems for Modifying Satellite Antenna Cell Patterns in Response to Terrestrial Reuse of Satellite Frequencies	ATC Technologies, LLC	7062267	6/13/2006
Systems and Methods for Increasing Capacity and/or Quality of Service of Terrestrial Cellular and Satellite Systems Using Terrestrial Reception of Satellite Band Frequencies	ATC Technologies, LLC	7092708	8/15/2006
Systems and Methods for Inter-System Sharing of Satellite Communications Frequencies within a Common Footprint	ATC Technologies, LLC	7113743	9/26/2006
Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	ATC Technologies, LLC	7113778	9/26/2006
Coordinated Satellite-Terrestrial Frequency Reuse	ATC Technologies, LLC	7149526	12/12/2006
Network-Assisted Global Positioning Systems, Methods and Terminals Including Doppler Shift and Code Phase Estimates	ATC Technologies, LLC	7155340	12/26/2006
Data Communications Systems and Methods Using Different Wireless Links for Inbound and Outbound Data	ATC Technologies, LLC	7174127	2/6/2007
Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	ATC Technologies, LLC	7181161	2/20/2007

Satellite Assisted Push-To-Send Radioterminal Systems and Methods	ATC Technologies, LLC	7203490	4/10/2007
Satellite Radiotelephone Systems Providing Staggered Sectorization for Terrestrial Reuse of Satellite Frequencies and Related Methods and Radiotelephone Systems	ATC Technologies, LLC	7218931	5/15/2007
Methods and Systems for Modifying Satellite Antenna Cell Patterns in Response to Terrestrial Use of Satellite Frequencies	ATC Technologies, LLC	7295807	11/13/2007
Intra-and/or Inter-System Interference Reducing Systems and Methods for Satellite Communications Systems	ATC Technologies, LLC	7340213	3/4/2008
Extraterrestrial Communications Systems and Methods Including Ancillary Extraterrestrial Components	ATC Technologies, LLC	7418236	8/26/2008
Systems And Methods for Handover Between Space Based And Terrestrial Radioterminal Communications	ATC Technologies, LLC	7418263	8/26/2008
Network-Assisted Global Positioning Systems, Methods and Terminals Including Doppler Shift and Code Phase Estimates	ATC Technologies, LLC	7421342	9/2/2008
Space-Based Network Architectures for Satellite Radiotelephone Systems	ATC Technologies, LLC	7437123	10/14/2008
Co-Channel Wireless Communication Methods and Systems Using Nonsymmetrical Alphabets	ATC Technologies, LLC	7444170	10/28/2008
Systems and Methods for Monitoring Selected Terrestrially Reused Satellite Frequency Signals to Reduce Potential Interference	ATC Technologies, LLC	7447501	11/4/2008
Radioterminals and Associated Operating Methods that Alternate Transmission of Wireless Communications and Processing of Global Positioning System Signals	ATC Technologies, LLC	7453396	11/18/2008
Code Synchronization in CDMA Satellite Wireless Communications System Using Uplink Channel Detection	ATC Technologies, LLC	7453920	11/18/2008
Broadband Wireless Communications Systems and Methods Using Multiple Non-Contiguous Frequency Bands/Segments	ATC Technologies, LLC	7454175	11/18/2008
Systems and Methods for Modifying Antenna Radiation Patterns of Peripheral Base Stations of Terrestrial Network to Allow Reduced Interference	ATC Technologies, LLC	7558568	7/7/2009
Systems and Methods for Reducing Satellite Feeder Link Bandwidth/Carriers in Cellular Satellite Systems	ATC Technologies, LLC	7574206	8/11/2009
Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	ATC Technologies, LLC	7577400	8/18/2009
Reducing Interference in a Wireless Communications Signal in the Frequency Domain	ATC Technologies, LLC	7587171	9/8/2009
Systems And Methods For Controlling A Level Of Interference To A Wireless Receiver Responsive To A Power Level Associated With A Wireless Transmitter	ATC Technologies, LLC	7593691	9/22/2009
Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex Mode	ATC Technologies, LLC	7593724	9/22/2009
SYSTEMS AND METHODS FOR MONITORING SELECTED TERRESTRIALLY USED SATELLITE FREQUENCY SIGNALS TO REDUCE POTENTIAL INTERFERENCE	ATC Technologies, LLC	7593725	9/22/2009
Coordinated Satellite-Terrestrial Frequency Reuse	ATC Technologies, LLC	7593726	9/22/2009

Satellite/Terrestrial Wireless Communications Systems and Methods Using Disparate Channel Separation Codes	ATC Technologies, LLC	7596111	9/29/2009
Spatial Guardbands for Terrestrial Reuse of Satellite Frequencies	ATC Technologies, LLC	7599656	10/6/2009
Radiotelephones and Operating Methods that Use a Single Radio Frequency Chain and a Single Baseband Processor for Space-based and terrestrial Communications	ATC Technologies, LLC	7603081	10/13/2009
Systems and Methods for Terrestrial Use of Cellular Satellite Frequency Spectrum	ATC Technologies, LLC	7603117	10/13/2009
Satellite/Hands-Free Interlock Systems and/or Companion Devices for Radioterminals and Related Methods	ATC Technologies, LLC	7606590	10/20/2009
Methods and Systems Providing Adaptive Feeder Links for Ground Based Beam Forming and Related Systems and Satellites	ATC Technologies, LLC	7609666	10/27/2009
Reusing Frequencies of a Fixed and/or Mobile Communications System	ATC Technologies, LLC	7620394	11/17/2009
Additional Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	ATC Technologies, LLC	7623859	11/24/2009
Satellite Communications Apparatus and Methods Using Asymmetrical Forward and Return Link Frequency Reuse	ATC Technologies, LLC	7623867	11/24/2009
Satellite Communications Systems and Methods with Distributed and/or Centralized Architecture Including Ground-Based Beam Forming	ATC Technologies, LLC	7627285	12/1/2009
Intra-System and/or Inter-System Reuse of Feeder Link Frequencies Including Interference Suppression Systems and Methods	ATC Technologies, LLC	7634229	12/15/2009
Prediction of Uplink Interference Potential Generated by an Ancillary Terrestrial Network and/or Radioterminals	ATC Technologies, LLC	7634234	12/15/2009
Satellite Communications Systems and Methods Using Diverse Polarizations	ATC Technologies, LLC	7636546	12/22/2009
Systems and Methods with Different Utilization of Satellite Frequency Bands by a Spaced-Based Network and an Ancillary Terrestrial Network	ATC Technologies, LLC	7636566	12/22/2009
Coordinated Satellite-Terrestrial Frequency Reuse	ATC Technologies, LLC	7636567	12/22/2009
Apparatus and Methods for Power Control in Satellite Communications Systems with Satellite-Linked Terrestrial Stations	ATC Technologies, LLC	7639981	12/29/2009
Satellite Communications Systems, Components and Methods for Operating Shared Satellite Gateways	ATC Technologies, LLC	7653348	1/26/2010
Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex and/or Frequency-Division Duplex Mode	ATC Technologies, LLC	7664460	2/16/2010
RADIOTERMINALS AND ASSOCIATED OPERATING METHODS THAT TRANSMIT POSITION INFORMATION RESPONSIVE TO CHANGE/RATE OF CHANGE OF POSITION	ATC Technologies, LLC	7696924	4/13/2010
Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	ATC Technologies, LLC	7706746	4/27/2010
Methods of Ground Based Beamforming and On-Board Frequency Translation and Related Systems	ATC Technologies, LLC	7706748	4/27/2010

Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	ATC Technologies, LLC	7706826	4/27/2010
Satellites Using Inter-Satellite Links to Create Indirect Feeder Link Paths	ATC Technologies, LLC	7738837	6/15/2010
Electronic Antenna Beam Steering Using Ancillary Receivers and Related Methods	ATC Technologies, LLC	7747229	6/29/2010
Systems and Methods for Controlling a Level of Interference to a Wireless Receiver Responsive to an Activity Factor Associated with a Wireless Transmitter	ATC Technologies, LLC	7751823	7/6/2010
Methods, Radioterminals, and Ancillary Terrestrial Components for Communicating Using Spectrum Allocated to Another Satellite Operator	ATC Technologies, LLC	7756490	7/13/2010
SATELLITE RADIOTELEPHONE SYSTEMS, METHODS, COMPONENTS AND DEVICES INCLUDING GATED RADIOTELEPHONE TRANSMISSIONS TO ANCILLARY TERRESTRIAL COMPONENTS	ATC Technologies, LLC	7783287	8/24/2010
Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum Using Different Channel Separation Technologies in Forward and Reverse Links	ATC Technologies, LLC	7792069	9/7/2010
SYSTEMS AND METHODS FOR TRANSMITTING ELECTROMAGNETIC ENERGY OVER A WIRELESS CHANNEL HAVING SUFFICIENTLY WEAK MEASURED SIGNAL STRENGTH	ATC Technologies, LLC	7792488	9/7/2010
SYSTEMS AND METHODS FOR PACKING/UNPACKING SATELLITE SERVICE LINKS TO/FROM SATELLITE FEEDER LINKS	ATC Technologies, LLC	7796985	9/14/2010
Modification of Transmission Values to Compensate for Interference in Satellite Down-Link Communications	ATC Technologies, LLC	7796986	9/14/2010
Methods and Systems for Configuring Satellite Antenna Cell Patterns in Response to Terrestrial Use of Satellite Frequencies	ATC Technologies, LLC	7801520	9/21/2010
Adaptive Beam Forming with Multi-User Detection and Interference Reduction in Satellite Communications Systems and Methods	ATC Technologies, LLC	7813700	10/12/2010
Communications Systems Including Adaptive Antenna Systems and Methods for Inter-System and Intra-System Interference Reduction	ATC Technologies, LLC	7817967	10/19/2010
Co-Channel Wireless Communication Methods and Systems Using Relayed Wireless Communications	ATC Technologies, LLC	7831201	11/9/2010
Satellite Communications Systems and Methods Using Substantially Co-Located Feeder Link Antennas	ATC Technologies, LLC	7831202	11/9/2010
Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	ATC Technologies, LLC	7831251	11/9/2010
SYSTEMS AND METHODS FOR FACILITATING COMMUNICATIONS OVER A SHARED CHANNEL	ATC Technologies, LLC	7835760	11/16/2010
BROADBAND WIRELESS COMMUNICATIONS SYSTEMS AND METHODS USING MULTIPLE NON-CONTIGUOUS FREQUENCY BANDS/SEGMENTS	ATC Technologies, LLC	7856211	12/21/2010
Methods of Reducing Interference Including Determination of Feeder Link Signal Error and Related Systems	ATC Technologies, LLC	7890050	2/15/2011

SYSTEMS AND METHODS FOR MONITORING SELECTED TERRESTRIALLY USED SATELLITE FREQUENCY SIGNALS TO REDUCE POTENTIAL INTERFERENCE	ATC Technologies, LLC	7890097	2/15/2011
Staggered Sectorization for Terrestrial Reuse of Satellite Frequencies	ATC Technologies, LLC	7890098	2/15/2011
SATELLITE/TERRESTRIAL WIRELESS COMMUNICATIONS SYSTEMS AND METHODS USING DISPARATE CHANNEL SEPARATION CODES	ATC Technologies, LLC	7899002	3/1/2011
Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	ATC Technologies, LLC	7907893	3/15/2011
Methods, Apparatus and Computer Program Products for Joint Decoding of Access Probes in a CDMA Communications System	ATC Technologies, LLC	7907944	3/15/2011
SATELLITE COMMUNICATIONS APPARATUS AND METHODS USING ASYMMETRICAL FORWARD AND RETURN LINK FREQUENCY REUSE	ATC Technologies, LLC	7917135	3/29/2011
Systems and Methods for Inter-System Sharing of Satellite Communications Frequencies Within a Common Footprint	ATC Technologies, LLC	7925209	4/12/2011
Multi-Band Satellite and/or Ancillary Terrestrial Component Radioterminal Communications Systems and Methods with Combining Operation	ATC Technologies, LLC	7933552	4/26/2011
PREDICTION OF UPLINK INTERFERENCE POTENTIAL GENERATED BY AN ANCILLARY TERRESTRIAL NETWORK AND/OR RADIOTERMINALS	ATC Technologies, LLC	7953373	5/31/2011
Satellite-Band Spectrum Utilization for Reduced or Minimum Interference	ATC Technologies, LLC	7957694	6/7/2011
Systems and Methods Of Waveform and/or Information Splitting For Wireless Transmission of Information To One Or More Radioterminals Over A Plurality Of Transmission Paths and/or System Elements	ATC Technologies, LLC	7970345	6/28/2011
Methods of Reducing Interference Including Calculation of Weights Based on Errors and Related Systems	ATC Technologies, LLC	7970346	6/28/2011
Systems, Methods and Transceivers for Wireless Communications Over Discontiguous Spectrum Segments	ATC Technologies, LLC	7974176	7/5/2011
Methods of Reducing Interference Including Applying Weights to Provide Corrections Signals and Related Systems	ATC Technologies, LLC	7974575	7/5/2011
SYSTEMS AND METHODS FOR MOBILITY MANAGEMENT IN OVERLAID MOBILE COMMUNICATIONS SYSTEMS	ATC Technologies, LLC	7974619	7/5/2011
ANTENNA BEAM FORMING SYSTEMS/METHODS USING UNCONSTRAINED PHASE RESPONSE	ATC Technologies, LLC	7978135	7/12/2011
Systems and Methods for Satellite Forward Link Transmit Diversity Using Orthogonal Space Coding	ATC Technologies, LLC	7979024	7/12/2011
RADIOTERMINALS AND ASSOCIATED OPERATING METHODS THAT TRANSMIT POSITION INFORMATION RESPONSIVE TO RATE OF CHANGE OF POSITION	ATC Technologies, LLC	7999735	8/16/2011
Radioterminals Including Satellite Interlocks and Related Methods	ATC Technologies, LLC	8014815	9/6/2011
REUSING FREQUENCIES OF A FIXED AND/OR MOBILE COMMUNICATIONS SYSTEM	ATC Technologies, LLC	8023939	9/20/2011

SYSTEMS AND METHODS FOR CONTROLLING A CELLULAR COMMUNICATIONS SYSTEM RESPONSIVE TO A POWER LEVEL ASSOCIATED WITH A WIRELESS TRANSMITTER	ATC Technologies, LLC	8023954	9/20/2011
SYSTEMS, METHODS AND DEVICES FOR REUSING SPECTRUM OF ANOTHER OPERATOR	ATC Technologies, LLC	8031646	10/4/2011
SYSTEMS AND METHODS FOR INTER-SYSTEM SHARING OF SATELLITE COMMUNICATIONS FREQUENCIES WITHIN A COMMON FOOTPRINT	ATC Technologies, LLC	8045975	10/25/2011
Radioterminals Including Satellite/Hands-Free Interlocks and Related Methods	ATC Technologies, LLC	8050674	11/1/2011
SYSTEMS AND METHODS WITH DIFFERENT UTILIZATION OF SATELLITE FREQUENCY BANDS BY A SPACE-BASED NETWORK AND AN ANCILLARY TERRESTRIAL NETWORK	ATC Technologies, LLC	8055257	11/8/2011
LOCATION-BASED BROADCAST MESSAGING FOR RADIOTERMINAL USERS	ATC Technologies, LLC	8064378	11/22/2011
SYSTEMS AND METHODS FOR REDUCING POWER ROBBING IMPACT OF INTERFERENCE TO A SATELLITE	ATC Technologies, LLC	8064824	11/22/2011
SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM IN A TIME-DIVISION DUPLEX MODE	ATC Technologies, LLC	8068828	11/29/2011
PREDICTION OF UPLINK INTERFERENCE POTENTIAL GENERATED BY AN ANCILLARY TERRESTRIAL NETWORK AND/OR RADIOTERMINALS	ATC Technologies, LLC	8073394	12/6/2011
Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex And/Or Frequency-Division Duplex Mode	ATC Technologies, LLC	8078101	12/13/2011
Systems and Methods for Forward Link Closed Loop Beamforming	ATC Technologies, LLC	8090041	1/3/2012
Co-Channel Wireless Communication Methods and Systems Using Relayed Wireless Communications	ATC Technologies, LLC	8108004	1/31/2012
SYSTEMS AND METHODS FOR MOBILITY MANAGEMENT IN OVERLAID MOBILE COMMUNICATIONS SYSTEMS	ATC Technologies, LLC	8131293	3/6/2012
Satellite-Band Spectrum Utilization for Reduced or Minimum Interference	ATC Technologies, LLC	8145126	3/27/2012
Systems and Methods for Orthogonal Frequency Division Multiple Access (OFDMA) Communications Over Satellite Links	ATC Technologies, LLC	8169955	5/1/2012
Satellite Assisted Radioterminal Communications Systems and Methods	ATC Technologies, LLC	8170474	5/1/2012
Frequency-Dependent Filtering for Wireless Communications Transmitters	ATC Technologies, LLC	8190114	5/29/2012
Iterative Antenna Beam Forming Systems/Methods	ATC Technologies, LLC	8193975	6/5/2012
SATELLITE COMMUNICATIONS SYSTEMS AND METHODS USING RADIOTELEPHONE LOCATION-BASED BEAMFORMING	ATC Technologies, LLC	8238818	8/7/2012
SYSTEMS AND METHODS FOR INTER-SYSTEM SHARING OF SATELLITE COMMUNICATIONS FREQUENCIES WITHIN A COMMON FOOTPRINT	ATC Technologies, LLC	8238819	8/7/2012

SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR MOBILITY MANAGEMENT IN HYBRID SATELLITE/TERRESTRIAL WIRELESS COMMUNICATIONS SYSTEMS	ATC Technologies, LLC	8249585	8/21/2012
Satellite Communications Systems and Methods Using Radiotelephone	ATC Technologies, LLC	8265549	9/11/2012
Systems and Methods for Modifying Antenna Radiation Patterns of Peripheral Base Stations of a Terrestrial Network to Allow Reduced Interference	ATC Technologies, LLC	8265637	9/11/2012
Satellite-band Spectrum Utilization for Reduced or Minimum Interference	ATC Technologies, LLC	8270898	9/18/2012
RETAINING TRAFFIC CHANNEL ASSIGNMENTS FOR SATELLITE TERMINALS TO PROVIDE LOWER LATENCY COMMUNICATION SERVICES	ATC Technologies, LLC	8274925	9/25/2012
Broadband Wireless Communications Systems and Methods Using Multiple Non-Contiguous Frequency Bands/Segments	ATC Technologies, LLC	8285225	10/9/2012
SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM IN A TIME-DIVISION DUPLEX MODE	ATC Technologies, LLC	8285278	10/9/2012
Antenna Beam Forming Systems, Methods and Devices Using Phase Adjusted Least Squares Beam Forming	ATC Technologies, LLC	8339308	12/25/2012
RADIOTERMINALS AND OPERATING METHODS THAT RECEIVE MULTIPLE MEASURES OF INFORMATION FROM MULTIPLE SOURCES	ATC Technologies, LLC	8340592	12/25/2012
INTEGRATED OR AUTONOMOUS SYSTEM AND METHOD OF SATELLITE-TERRESTRIAL FREQUENCY REUSE USING SIGNAL ATTENUATION AND/OR BLOCKAGE, DYNAMIC ASSIGNMENT OF FREQUENCIES AND/OR HYSTERESIS	ATC Technologies, LLC	8369775	2/5/2013
APPARATUS AND METHODS FOR POWER CONTROL IN SATELLITE COMMUNICATIONS SYSTEMS WITH SATELLITE-LINKED TERRESTRIAL STATIONS	ATC Technologies, LLC	8369776	2/5/2013
Satellite with Different Size Service Link Antennas and Radioterminal Communication Methods Using the Same	ATC Technologies, LLC	8380186	2/19/2013
SYSTEMS AND METHODS FOR FACILITATING COMMUNICATIONS OVER A SHARED CHANNEL	ATC Technologies, LLC	8385924	2/26/2013
COMMUNICATIONS SYSTEMS INCLUDING ADAPTIVE ANTENNA SYSTEMS AND METHODS FOR INTER-SYSTEM AND INTRA-SYSTEM INTERFERENCE REDUCTION	ATC Technologies, LLC	8412126	4/2/2013
Systems, Methods and Devices For Overlaid Operations of Satellite and Terrestrial Wireless Communications Systems	ATC Technologies, LLC	8433241	4/30/2013
SYSTEMS, METHODS AND TRANSCEIVERS FOR WIRELESS COMMUNICATIONS OVER DISCONTIGUOUS SPECTRUM SEGMENTS	ATC Technologies, LLC	8494457	7/23/2013
Systems, Methods and Network Components That Provide Different Satellite Spot Beam Return Carrier Groupings and Reuse Patterns	ATC Technologies, LLC	8520561	8/27/2013
Apparatus and Methods for Mobility Management in Hybrid Terrestrial-Satellite Mobile Communications System	ATC Technologies, LLC	8526941	9/3/2013



SYSTEMS AND METHODS FOR ADAPTIVE INTERFERENCE CANCELLATION BEAMFORMING	ATC Technologies, LLC	8576769	11/5/2013
Location-Based Broadcast Messaging for Radioterminal Users	ATC Technologies, LLC	8594704	11/26/2013
Communications Systems and Methods Including Emission Detection	ATC Technologies, LLC	8655398	2/18/2014
Additional Intra-and/or Inter-System Interference Reducing Systems and Methods for Satellite Communications Systems	ATC Technologies, LLC	8670705	3/11/2014
Adaptive Spotbeam Broadcasting, Systems, Methods and Devices for High Bandwidth Content Distribution Over Satellite	ATC Technologies, LLC	8705436	4/22/2014
ADAPTIVE BEAM FORMING WITH MULTI-USER DETECTION AND INTERFERENCE REDUCTION IN SATELLITE COMMUNICATION SYSTEMS AND METHODS	ATC Technologies, LLC	8744360	6/3/2014
SYSTEMS, METHODS AND TRANSCEIVERS OR WIRELESS COMMUNICATIONS OVER DISCONTIGUOUS SPECTRUM SEGMENTS	ATC Technologies, LLC	8831122	9/9/2014
Systems and Methods for Controlling Base Station Sectors to Reduce Potential Interference with Low Elevation Satellites	ATC Technologies, LLC	8923850	12/30/2014
Methods and Systems for Satellite Communications Employing Ground-Based Beam Forming with Spatially Distributed Hybrid Matrix Amplifiers	ATC Technologies, LLC	9014619	4/21/2015
APPARATUS AND METHODS FOR POWER CONTROL IN SATELLITE COMMUNICATIONS SYSTEMS WITH SATELLITE-LINKED TERRESTRIAL STATIONS	ATC Technologies, LLC	9037078	5/19/2015
Wireless Communications Systems and Methods Using Satellite-Linked Remote Terminal Interface Subsystems	ATC Technologies, LLC	RE42261	3/29/2011
Filters for Combined Radiotelephone/GPS Terminals	ATC Technologies, LLC	RE43137	1/24/2012
Filters for Combined Radiotelephone/GPS Terminals	ATC Technologies, LLC	RE45107	9/2/2014
Mobile handset	ATC Technologies, LLC	D597988	8/11/2009
Miniaturized quadrifilar helix antenna	ATC Technologies, LLC	8022890	9/20/2011
PROVIDING DIFFERENT TRANSMIT AND/OR RECEIVE MODES IN DIFFERENT SECTORS OF A WIRELESS BASE STATION	ATC Technologies, LLC	9461806	10/4/2016
METHODS AND DEVICES FOR ALLOCATING RESOURCE BLOCKS IN AN LTE NETWORK	ATC Technologies, LLC	9271296	2/23/2016
POWER MODE FOR A COMMUNICATION DEVICE	ATC Technologies, LLC	9161312	10/13/2015
Wireless Networks, Devices and Methods that Establish Asymmetric Frequency Division Duplex (FDD) Links Using a Downlink Frequency Carrier and Multiple Uplink Frequency Carriers	ATC Technologies, LLC	9820276	11/14/2017
Frequency Division Duplex (FDD) Return Link Transmit Diversity Systems, Methods and Devices Using Forward Link Side Information	ATC Technologies LLC	10110288	10/23/2018
Network Design in Wireless Communications	ATC Technologies, LLC	9380465	06/28/2016 Assigned 09/03/2019
Devices, Systems, and Methods for Resource Allocation of Shared Spectrum	ATC Technologies, LLC	10397797	08/27/2019
Same Channel Repeater for Satellite and Terrestrial Links	ATC Technologies, LLC	10340997	07/02/2019
Localized Content Delivery Platform	ATC Technologies, LLC	10615866	04/07/2020
Communicating with Unmanned Aerial Vehicle and Air Traffic	ATC Technologies, LLC	10531505B	01/07/2020

Control		2	
Wireless Communication Systems with Code-division Multiple Access and Interference Avoidance	ATC Technologies, LLC	10666316	05/26/2020
Systems and Methods for Frequency Drift Compensation for Radio Receivers	ATC Technologies, LLC	10677930	06/09/2020
Application Service Virtual Circuit	ATC Technologies, LLC	10708188	07/07/2020
Multi-Path TCP Over Dual Networks	ATC Technologies, LLC	10735989	08/04/2020
Dynamic Speed Control	ATC Technologies, LLC	10775802	09/15/2020
Devices, Systems and Methods for Channel Access in Dynamic Spectrum Sharing	ATC Technologies LLC	10785686	09/22/2020
Network Device Data Exchange Coordination	ATC Technologies, LLC	16/263,994	01/31/2019
Systems and Methods for Weather Satellite Content Delivery	ATC Technologies, LLC	15/875,601	1/19/2018
Devices, Systems, and Methods for Uplink Synchronization in Time Division Multiple Access (TDMA) Satellite Network	ATC Technologies, LLC	16/405,369 (non-provisional)	05/07/2019
Wireless Communication System with	ATC Technologies LLC	15/997,603	06/04/2018
Devices, Systems, and Methods for	ATC Technologies, LLC	16/516,937 (non-provisional)	07/19/2019
Systems And Methods For Locating and	ATC Technologies, LLC	16/146,661	09/28/2018

**Schedule 3**

**U.S TRADEMARKS AND TRADEMARK APPLICATIONS**

**REEL: 7049 FRAME: 0257**

<b>OWNER</b>	<b>REGISTRATION NUMBER / APPLICATION NUMBER</b>	<b>TRADEMARK</b>
Ligado Networks LLC	2007216	MSAT
Ligado Networks LLC	3680387	SMART
LightSquared	4572620	LIGHTSQUARED
LightSquared	4564387	LIGHTSQUARED
Ligado Networks LLC	5030378	LIGADO
Ligado Networks LLC	5030380	LIGADO NETWORKS
Ligado Networks LLC	5036082	LIGADO NETWORKS
Ligado Networks LLC	5036073	LIGADO NETWORKS MAKING STRONG CONNECTIONS

**Schedule 4**

**U.S. COPYRIGHTS**

**NONE**