

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM605052

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST

CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
Cortland Capital Market Services LLC		10/23/2020	Limited Liability Company:

RECEIVING PARTY DATA

Name:	LIGADO NETWORKS LLC
Street Address:	10802 Parkridge Blvd..
City:	Reston
State/Country:	VIRGINIA
Postal Code:	20191
Entity Type:	Limited Liability Company: DELAWARE
Name:	ATC TECHNOLOGIES, LLC
Street Address:	1400 Opus Place
Internal Address:	Suite 600
City:	Downers Grove
State/Country:	ILLINOIS
Postal Code:	60515
Entity Type:	Limited Liability Company: DELAWARE

PROPERTY NUMBERS Total: 8

Property Type	Number	Word Mark
Registration Number:	2007216	MSAT
Registration Number:	3680387	SMART
Registration Number:	4572620	LIGHTSQUARED
Registration Number:	4564387	LIGHTSQUARED
Registration Number:	5030378	LIGADO
Registration Number:	5030380	LIGADO NETWORKS
Registration Number:	5036082	LIGADO NETWORKS
Registration Number:	5036073	LIGADO NETWORKS MAKING STRONGER CONNECTI

CORRESPONDENCE DATA

Fax Number: 4142770656

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

TRADEMARK

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 14142716560
Email: mkeipdocket@michaelbest.com
Correspondent Name: Michael Best & Friedrich LLP
Address Line 1: 790 N. Water Treet
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: 42

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RELEASE OF SECURITY INTERESTS
IN INTELLECTUAL PROPERTY

THIS RELEASE OF SECURITY INTERESTS IN INTELLECTUAL PROPERTY (this "Release"), is made as of October 23, 2020 by CORTLAND CAPITAL MARKET SERVICES LLC, in its capacity as successor administrative agent for the Lenders under the Credit Agreement referred to below (the "Agent") for the benefit of LIGADO NETWORKS LLC, a Delaware limited liability company (formerly known as New LightSquared LLC) (the "Borrower") and ATC TECHNOLOGIES, LLC, a Delaware limited liability company together with the Borrower, the "Grantors").

WHEREAS, the Borrower, the guarantors from time to time party thereto, the financial institutions from time to time party thereto and the Agent are parties to that certain (i) Senior Secured Loan Agreement dated as of June 15, 2015 (as amended by that certain Amendment No. 1, dated as of February 18, 2020 and as further as amended, amended and restated, supplemented or otherwise modified from time to time, the "Credit Agreement"); and (ii) U.S. Security Agreement, dated as of December 7, 2015 (as may be amended, amended and restated, supplemented or otherwise modified from time to time, the "Security Agreement"), and those certain security agreements identified on Schedule A hereto (the "IP Security Agreements"); and

WHEREAS, the Grantors have requested that the Agent release, and the Agent now desires to release its lien on and security interest in and under the IP Security Agreements, including, without limitation, such lien and security interest on the Intellectual Property (as defined below) set forth on Schedules B and C hereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, and upon the terms set forth in this Release, the Agent hereby states as follows:

1. **Definitions**. The term "Intellectual Property," as used herein, shall mean (i) Trademarks constituting Collateral as defined in the IP Security Agreements, including those listed on Schedule B attached hereto; and (ii) Patents constituting Collateral as defined in the IP Security Agreements, including those listed on Schedule C attached hereto.

2. **Release of Security Interest**. The Agent hereby terminates the IP Security Agreements and hereby absolutely and unconditionally terminates, releases, reconveys and forever discharges its security interest and any other interest in the Intellectual Property. Agent further absolutely and unconditionally releases all of its right, title and interest in and to any and all property, assets and collateral secured, hypothecated or pledged under or by the IP Security Agreements.

3 The Agent hereby (i) authorizes the Grantors or the Grantors' authorized representative to record this Release with the U.S. Patent and Trademark Office, the Canadian Intellectual Property Office, and any and all similar foreign agencies, as applicable, and (ii) authorizes and requests that the U.S. Patent and Trademark Office, the Canadian Intellectual

Property Office, and any and all similar foreign agencies, as applicable, note and record the existence of this Release hereby given.

4. Further Assurances. The Agent shall take all further actions, and provide to the Grantors and their successors, assigns or other legal representatives all such cooperation and assistance (including, without limitation, the execution and delivery of any and all documents or other instruments), requested by the Grantors to more fully and effectively effectuate the purposes of this Release.

(Signature pages follow.)

IN WITNESS WHEREOF, the Agent has caused this Termination to be executed by its duly authorized officer as of the date first written above.


AGENT:

CORTLAND CAPITAL MARKET SERVICES
LLC

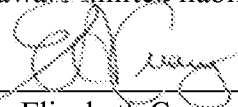
By: 
Name: _____
Title: Matthew Trybula
Associate Counsel

GRANTORS:

LIGADO NETWORKS LLC,
a Delaware limited liability company

By: 
Name: Elizabeth Creary
Title: SVP, Assistant Secretary

ATC TECHNOLOGIES, LLC,
a Delaware limited liability company

By: 
Name: Elizabeth Creary
Title: SVP, Assistant Secretary

SCHEDULE A

IP SECURITY AGREEMENTS

1. Patent Security Agreement, dated as of December 7, 2015, made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
2. Patent Security Agreement, dated as of December 31, 2017, made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
3. Patent Security Agreement, dated as of September 14, 2018 made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
4. Patent Security Agreement, dated as of July 31, 2019 made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
5. Patent Security Agreement, dated as of November 14, 2019 made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
6. Patent Security Agreement, dated as of April 2, 2020 made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
7. Trademark Security Agreement, dated as of December 7, 2015 made by the Borrower in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
8. Trademark Security Agreement No. 2, dated as of November 7, 2016 made by Ligado Networks LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties
9. Patent Security Agreement, dated as of December 7, 2015, made by ATC Technologies, LLC in favor of Credit Suisse AG, Cayman Islands Branch as Collateral Agent for the Secured Parties

SCHEDULE B**U.S. TRADEMARKS AND TRADEMARK APPLICATIONS**

DPW REF #	MARK	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/FRAME
001	MSAT	74665449	04/24/1995	2007216	10/08/1996	Ligado Networks LLC	5714/0527 5921/0130
003	SMART	77249735	08/08/2007	3680387	09/08/2009	Ligado Networks LLC	5714/0527 5921/0130
004	LIGHTSQUARED	85016159	04/16/2010	4572620	07/22/2014	LightSquared LP	5714/0527 5921/0130
005	LIGHTSQUARED	85016190	04/16/2010	4564387	07/08/2014	LightSquared LP	5714/0527 5921/0130
006	LIGADO	86810324	11/05/2015	5030378	08/30/2016	Ligado Networks LLC	5921/0130
007	LIGADO NETWORKS	86810405	11/05/2015	5030380	08/30/2016	Ligado Networks LLC	5921/0130
008	LIGADO NETWORKS	86889893	01/28/2016	5036082	09/06/2016	Ligado Networks LLC	5921/0130
009	LIGADO NETWORKS MAKING STRONGER CONNECTIONS	86889778	01/28/2016	5036073	09/06/2016	Ligado Networks LLC	5921/0130

SCHEDULE C

U.S. PATENTS AND PATENT APPLICATIONS

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
016	Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum	10074097	02/12/2002	6684057	1/27/2004	ATC Technologies, LLC	037573/0939
017	Filters for Combined Radiotelephone/GPS Terminals	10353548	01/29/2003	6785543	8/31/2004	ATC Technologies, LLC	037573/0939
018	Wireless Communications Systems and Methods Using Satellite-Linked Remote Terminal Interface Subsystems	10151567	05/20/2002	6856787	2/15/2005	ATC Technologies, LLC	037573/0939
019	System and Method of Terrestrial Frequency Reuse Using Signal Attenuation and Dynamic	10000799	12/04/2001	6859652	2/22/2005	ATC Technologies, LLC	037573/0939
020	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	10828378	04/20/2004	6879829	4/12/2005	ATC Technologies, LLC	037573/0939
021	Coordinated Satellite-Terrestrial Frequency Reuse	09918709	08/01/2001	6892068	5/10/2005	ATC Technologies, LLC	037573/0939
022	Systems and Methods for Reducing Satellite Feeder Link Bandwidth/Carriers in Cellular Satellite Systems	10328062	12/23/2002	6937857	8/30/2005	ATC Technologies, LLC	037573/0939
023	Spatial Guardbands for Terrestrial Reuse of Satellite Frequencies	10180281	06/26/2002	6999720	2/14/2006	ATC Technologies, LLC	037573/0939
024	Space-Based Network Architectures for Satellite Radiotelephone Systems	10225623	08/22/2002	7006789	2/28/2006	ATC Technologies, LLC	037573/0939
025	Additional Systems	10225616	08/22/2002	7031702	4/18/2006	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	and Methods for Monitoring Terrestrially Reused Satellite Frequencies to Reduce Potential Interference						
026	Systems and Methods for Monitoring Terrestrially Reused Satellite Frequencies to Reduce Potential Interference	10156363	05/28/2002	7039400	5/2/2006	ATC Technologies, LLC	037573/0939
027	Methods and Systems for Modifying Satellite Antenna Cell Patterns in Response to Terrestrial Reuse of Satellite Frequencies	10225615	08/22/2002	7062267	6/13/2006	ATC Technologies, LLC	037573/0939
028	Systems and Methods for Increasing Capacity and/or Quality of Service of Terrestrial Cellular and Satellite Systems Using Terrestrial Reception of Satellite Band Frequencies	10317320	12/12/2002	7092708	8/15/2006	ATC Technologies, LLC	037573/0939
029	Systems and Methods for Inter-System Sharing of Satellite Communications Frequencies within a Common Footprint	10932810	09/02/2004	7113743	9/26/2006	ATC Technologies, LLC	037573/0939
030	Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	10819542	04/07/2004	7113778	9/26/2006	ATC Technologies, LLC	037573/0939
031	Coordinated Satellite-Terrestrial Frequency Reuse	10343471	06/09/2003	7149526	12/12/2006	ATC Technologies, LLC	037573/0939
032	Network-Assisted Global Positioning Systems, Methods and Terminals Including Doppler Shift and Code Phase Estimates	10751715	01/05/2004	7155340	12/26/2006	ATC Technologies, LLC	037573/0939
033	Data Communications Systems and Methods Using Different Wireless Links for	10246868	09/17/2002	7174127	2/6/2007	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	Inbound and Outbound Data						
034	Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	10225613	08/22/2002	7181161	2/20/2007	ATC Technologies, LLC	037573/0939
035	Satellite Assisted Push-To-Send Radioterminal Systems and Methods	10795620	03/08/2004	7203490	4/10/2007	ATC Technologies, LLC	037573/0939
036	Satellite Radiotelephone Systems Providing Staggered Sectorization for Terrestrial Reuse of Satellite Frequencies and Related Methods and Radiotelephone Systems	10353308	01/29/2003	7218931	5/15/2007	ATC Technologies, LLC	037573/0939
037	Methods and Systems for Modifying Satellite Antenna Cell Patterns in Response to Terrestrial Use of Satellite Frequencies	11356418	02/16/2006	7295807	11/13/2007	ATC Technologies, LLC	037573/0939
038	Intra-and/or Inter-System Interference Reducing Systems and Methods for Satellite Communications Systems	10890758	07/14/2004	7340213	3/4/2008	ATC Technologies, LLC	037573/0939
039	Extraterrestrial Communications Systems and Methods Including Ancillary Extraterrestrial Components	10827961	04/20/2004	7418236	8/26/2008	ATC Technologies, LLC	037573/0939
040	Systems And Methods for Handover Between Space Based And Terrestrial Radioterminal Communications	11095007	03/31/2005	7418263	8/26/2008	ATC Technologies, LLC	037573/0939
041	Network-Assisted Global Positioning Systems, Methods and Terminals Including Doppler Shift and Code Phase Estimates	11559560	11/14/2006	7421342	9/2/2008	ATC Technologies, LLC	037573/0939
042	Space-Based Network Architectures for	11241519	09/30/2005	7437123	10/14/2008	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	Satellite Radiotelephone Systems						
043	Co-Channel Wireless Communication Methods and Systems Using Nonsymmetrical Alphabets	10795875	03/08/2004	7444170	10/28/2008	ATC Technologies, LLC	037573/0939
044	Systems and Methods for Monitoring Selected Terrestrially Reused Satellite Frequency Signals to Reduce Potential Interference	11133102	05/19/2005	7447501	11/4/2008	ATC Technologies, LLC	037573/0939
045	Radioterminals and Associated Operating Methods that Alternate Transmission of Wireless Communications and Processing of Global Positioning System Signals	11098288	04/04/2005	7453396	11/18/2008	ATC Technologies, LLC	037573/0939
046	Code Synchronization in CDMA Satellite Wireless Communications System Using Uplink Channel Detection	11067006	02/25/2005	7453920	11/18/2008	ATC Technologies, LLC	037573/0939
047	Broadband Wireless Communications Systems and Methods Using Multiple Non-Contiguous Frequency Bands/Segments	11006318	12/07/2004	7454175	11/18/2008	ATC Technologies, LLC	037573/0939
048	Systems and Methods for Modifying Antenna Radiation Patterns of Peripheral Base Stations of Terrestrial Network to Allow Reduced Interference	10880023	06/28/2004	7558568	7/7/2009	ATC Technologies, LLC	037573/0939
049	Systems and Methods for Reducing Satellite Feeder Link Bandwidth/Carriers in Cellular Satellite Systems	11146463	06/07/2005	7574206	8/11/2009	ATC Technologies, LLC	037573/0939
050	Integrated or Autonomous System	10965303	10/14/2004	7577400	8/18/2009	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis						
051	Reducing Interference in a Wireless Communications Signal in the Frequency Domain	11367955	03/03/2006	7587171	9/8/2009	ATC Technologies, LLC	037573/0939
052	Systems And Methods For Controlling A Level Of Interference To A Wireless Receiver Responsive To A Power Level Associated With A Wireless Transmitter	11683766	03/08/3007	7593691	9/22/2009	ATC Technologies, LLC	037573/0939
053	Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex Mode	10730660	12/08/2003	7593724	9/22/2009	ATC Technologies, LLC	037573/0939
054	SYSTEMS AND METHODS FOR MONITORING SELECTED TERRESTRIALLY USED SATELLITE FREQUENCY SIGNALS TO REDUCE POTENTIAL INTERFERENCE	12239307	09/26/2008	7593725	9/22/2009	ATC Technologies, LLC	037573/0939
055	Coordinated Satellite-Terrestrial Frequency Reuse	11382898	05/11/2006	7593726	9/22/2009	ATC Technologies, LLC	037573/0939
056	Satellite/Terrestrial Wireless Communications Systems and Methods Using Disparate Channel Separation Codes	11044477	01/27/2005	7596111	9/29/2009	ATC Technologies, LLC	037573/0939
057	Spatial Guardbands for Terrestrial Reuse of Satellite Frequencies	11252956	10/18/2005	7599656	10/6/2009	ATC Technologies, LLC	037573/0939

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058	Radiotelephones and Operating Methods that Use a Single Radio Frequency Chain and a Single Baseband Processor for Space-based and terrestrial Communications	11142119	06/01/2005	7603081	10/13/2009	ATC Technologies, LLC	037573/0939
059	Systems and Methods for Terrestrial Use of Cellular Satellite Frequency Spectrum	11147048	06/07/2005	7603117	10/13/2009	ATC Technologies, LLC	037573/0939
060	Satellite/Hands-Free Interlock Systems and/or Companion Devices for Radioterminals and Related Methods	11094931	03/31/2005	7606590	10/20/2009	ATC Technologies, LLC	037573/0939
061	Methods and Systems Providing Adaptive Feeder Links for Ground Based Beam Forming and Related Systems and Satellites	11375422	03/14/2006	7609666	10/27/2009	ATC Technologies, LLC	037573/0939
062	Reusing Frequencies of a Fixed and/or Mobile Communications System	11358846	02/21/2006	7620394	11/17/2009	ATC Technologies, LLC	037573/0939
063	Additional Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	11538701	10/04/2006	7623859	11/24/2009	ATC Technologies, LLC	037573/0939
064	Satellite Communications Apparatus and Methods Using Asymmetrical Forward and Return Link Frequency Reuse	11458754	07/20/2006	7623867	11/24/2009	ATC Technologies, LLC	037573/0939
065	Satellite Communications Systems and Methods with Distributed and/or Centralized Architecture Including Ground-Based Beam Forming	11374191	03/13/2006	7627285	12/1/2009	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
066	Intra-System and/or Inter-System Reuse of Feeder Link Frequencies Including Interference Suppression Systems and Methods	11375277	03/14/2006	7634229	12/15/2009	ATC Technologies, LLC	037573/0939
067	Prediction of Uplink Interference Potential Generated by an Ancillary Terrestrial Network and/or Radioterminals	11295383	12/06/2005	7634234	12/15/2009	ATC Technologies, LLC	037573/0939
068	Satellite Communications Systems and Methods Using Diverse Polarizations	11313039	12/20/2005	7636546	12/22/2009	ATC Technologies, LLC	037573/0939
069	Systems and Methods with Different Utilization of Satellite Frequency Bands by a Spaced-Based Network and an Ancillary Terrestrial Network	11082458	03/17/2005	7636566	12/22/2009	ATC Technologies, LLC	037573/0939
070	Coordinated Satellite-Terrestrial Frequency Reuse	11327687	01/06/2006	7636567	12/22/2009	ATC Technologies, LLC	037573/0939
071	Apparatus and Methods for Power Control in Satellite Communications Systems with Satellite-Linked Terrestrial Stations	10979295	11/02/2004	7639981	12/29/2009	ATC Technologies, LLC	037573/0939
072	Satellite Communications Systems, Components and Methods for Operating Shared Satellite Gateways	11280621	11/16/2005	7653348	1/26/2010	ATC Technologies, LLC	037573/0939
073	Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex and/or Frequency-Division Duplex Mode	11021077	12/23/2004	7664460	2/16/2010	ATC Technologies, LLC	037573/0939
074	RADIOTERMinals AND ASSOCIATED OPERATING	12249641	10/10/2008	7696924	4/13/2010	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	METHODS THAT TRANSMIT POSITION INFORMATION RESPONSIVE TO CHANGE/RATE OF CHANGE OF POSITION						
075	Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	11178883	07/11/2005	7706746	4/27/2010	ATC Technologies, LLC	037573/0939
076	Methods of Ground Based Beamforming and On-Board Frequency Translation and Related Systems	11167010	06/24/2005	7706748	4/27/2010	ATC Technologies, LLC	037573/0939
077	Aggregate Radiated Power Control for Multi-Band/Multi-Mode Satellite Radiotelephone Communications Systems and Methods	11300868	12/15/2005	7706826	4/27/2010	ATC Technologies, LLC	037573/0939
078	Satellites Using Inter-Satellite Links to Create Indirect Feeder Link Paths	11313572	12/21/2005	7738837	6/15/2010	ATC Technologies, LLC	037573/0939
079	Electronic Antenna Beam Steering Using Ancillary Receivers and Related Methods	11281078	11/17/2005	7747229	6/29/2010	ATC Technologies, LLC	037573/0939
080	Systems and Methods for Controlling a Level of Interference to a Wireless Receiver Responsive to an Activity Factor Associated with a Wireless Transmitter	11679480	02/27/2007	7751823	7/6/2010	ATC Technologies, LLC	037573/0939
081	Methods, Radioterminals, and Ancillary Terrestrial Components for Communicating Using Spectrum Allocated to	11355639	02/16/2006	7756490	7/13/2010	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	Another Satellite Operator						
082	SATELLITE RADIOTELEPHONE SYSTEMS, METHODS, COMPONENTS AND DEVICES INCLUDING GATED RADIOTELEPHONE TRANSMISSIONS TO ANCILLARY TERRESTRIAL COMPONENTS	12275959	11/21/2008	7783287	8/24/2010	ATC Technologies, LLC	037573/0939
083	Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum Using Different Channel Separation Technologies in Forward and Reverse Links	11762323	06/13/2007	7792069	9/7/2010	ATC Technologies, LLC	037573/0939
084	SYSTEMS AND METHODS FOR TRANSMITTING ELECTROMAGNETIC ENERGY OVER A WIRELESS CHANNEL HAVING SUFFICIENTLY WEAK MEASURED SIGNAL STRENGTH	12360554	01/27/2009	7792488	9/7/2010	ATC Technologies, LLC	037573/0939
085	SYSTEMS AND METHODS FOR PACKING/UNPACKING SATELLITE SERVICE LINKS TO/FROM SATELLITE FEEDER LINKS	12495120	06/30/2009	7796985	9/14/2010	ATC Technologies, LLC	037573/0939
086	Modification of Transmission Values to Compensate for Interference in Satellite Down-Link Communications	11367065	03/03/2006	7796986	9/14/2010	ATC Technologies, LLC	037573/0939
087	Methods and Systems for Configuring Satellite Antenna Cell Patterns in Response to Terrestrial Use of Satellite Frequencies	11866656	10/03/2007	7801520	9/21/2010	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
088	Adaptive Beam Forming with Multi-User Detection and Interference Reduction in Satellite Communications Systems and Methods	11324711	01/03/2006	7813700	10/12/2010	ATC Technologies, LLC	037573/0939
089	Communications Systems Including Adaptive Antenna Systems and Methods for Inter-System and Intra-System Interference Reduction	11449115	06/08/2006	7817967	10/19/2010	ATC Technologies, LLC	037573/0939
090	Co-Channel Wireless Communication Methods and Systems Using Relayed Wireless Communications	12021515	01/29/2008	7831201	11/9/2010	ATC Technologies, LLC	037573/0939
091	Satellite Communications Systems and Methods Using Substantially Co-Located Feeder Link Antennas	11463120	08/08/2006	7831202	11/9/2010	ATC Technologies, LLC	037573/0939
092	Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	11069305	03/01/2005	7831251	11/9/2010	ATC Technologies, LLC	037573/0939
093	SYSTEMS AND METHODS FOR FACILITATING COMMUNICATIONS OVER A SHARED CHANNEL	11197357	08/05/2005	7835760	11/16/2010	ATC Technologies, LLC	037573/0939
094	BROADBAND WIRELESS COMMUNICATIONS SYSTEMS AND METHODS USING MULTIPLE NON-CONTIGUOUS FREQUENCY BANDS/SEGMENTS	12249470	10/10/2008	7856211	12/21/2010	ATC Technologies, LLC	037573/0939
095	Methods of Reducing	12400143	03/09/2009	7890050	2/15/2011	ATC Technologies, LLC	037573/0939

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	Interference Including Determination of Feeder Link Signal Error and Related Systems						
096	SYSTEMS AND METHODS FOR MONITORING SELECTED TERRESTRIALLY USED SATELLITE FREQUENCY SIGNALS TO REDUCE POTENTIAL INTERFERENCE	12540142	08/12/2009	7890097	2/15/2011	ATC Technologies, LLC	037573/0939
097	Staggered Sectorization for Terrestrial Reuse of Satellite Frequencies	11413284	04/28/2006	7890098	2/15/2011	ATC Technologies, LLC	037573/0939
098	SATELLITE/TERRESTRIAL WIRELESS COMMUNICATIONS SYSTEMS AND METHODS USING DISPARATE CHANNEL SEPARATION CODES	12540873	08/13/2009	7899002	3/1/2011	ATC Technologies, LLC	037573/0939
099	Integrated or Autonomous System and Method of Satellite-Terrestrial Frequency Reuse Using Signal Attenuation and/or Blockage, Dynamic Assignment of Frequencies and/or Hysteresis	11536481	09/28/2006	7907893	3/15/2011	ATC Technologies, LLC	037573/0939
100	Methods, Apparatus and Computer Program Products for Joint Decoding of Access Probes in a CDMA Communications System	11427576	06/29/2006	7907944	3/15/2011	ATC Technologies, LLC	037573/0939
101	SATELLITE COMMUNICATIONS APPARATUS AND METHODS USING ASYMMETRICAL	12578149	10/13/2009	7917135	3/29/2011	ATC Technologies, LLC	037573/0939

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	FORWARD AND RETURN LINK FREQUENCY REUSE						
102	Systems and Methods for Inter-System Sharing of Satellite Communications Frequencies Within a Common Footprint	11457605	07/14/2006	7925209	4/12/2011	ATC Technologies, LLC	037573/0939
103	Multi-Band Satellite and/or Ancillary Terrestrial Component Radioterminal Communications Systems and Methods with Combining Operation	11061346	02/18/2005	7933552	4/26/2011	ATC Technologies, LLC	037573/0939
104	PREDICTION OF UPLINK INTERFERENCE POTENTIAL GENERATED BY AN ANCILLARY TERRESTRIAL NETWORK AND/OR RADIOTERMINALS	12575714	10/08/2009	7953373	5/31/2011	ATC Technologies, LLC	037573/0939
105	Satellite-Band Spectrum Utilization for Reduced or Minimum Interference	11200609	08/10/2005	7957694	6/7/2011	ATC Technologies, LLC	037573/0939
106	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	11472079	06/21/2006	7970345	6/28/2011	ATC Technologies, LLC	037573/0939
107	Methods of Reducing Interference Including Calculation of Weights Based on Errors and Related Systems	12400160	03/09/2009	7970346	6/28/2011	ATC Technologies, LLC	037573/0939
108	Systems, Methods and Transceivers for Wireless Communications Over	11679598	02/27/2007	7974176	7/5/2011	ATC Technologies, LLC	037573/0939

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	Discontiguous Spectrum Segments						
109	Methods of Reducing Interference Including Applying Weights to Provide Corrections Signals and Related Systems	12400152	03/09/2009	7974575	7/5/2011	ATC Technologies, LLC	037573/0939
110	SYSTEMS AND METHODS FOR MOBILITY MANAGEMENT IN OVERLAID MOBILE COMMUNICATIONS SYSTEMS	12960760	12/06/2010	7974619	7/5/2011	ATC Technologies, LLC	037573/0939
111	ANTENNA BEAM FORMING SYSTEMS/METHODS USING UNCONSTRAINED PHASE RESPONSE	12370224	02/12/2009	7978135	7/12/2011	ATC Technologies, LLC	037573/0939
112	Systems and Methods for Satellite Forward Link Transmit Diversity Using Orthogonal Space Coding	11624495	01/18/2007	7979024	7/12/2011	ATC Technologies, LLC	037573/0939
113	RADIOTERMINALS AND ASSOCIATED OPERATING METHODS THAT TRANSMIT POSITION INFORMATION RESPONSIVE TO RATE OF CHANGE OF POSITION	12710090	02/22/2010	7999735	8/16/2011	ATC Technologies, LLC	037573/0939
114	Radioterminals Including Satellite Interlocks and Related Methods	12902449	10/12/2010	8014815	9/6/2011	ATC Technologies, LLC	037573/0939
115	REUSING FREQUENCIES OF A FIXED AND/OR MOBILE COMMUNICATIONS SYSTEM	12568283	09/28/2009	8023939	9/20/2011	ATC Technologies, LLC	037573/0939
116	SYSTEMS AND METHODS FOR CONTROLLING A CELLULAR COMMUNICATIONS SYSTEM	12540054	08/12/2009	8023954	9/20/2011	ATC Technologies, LLC	037573/0939

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	RESPONSIVE TO A POWER LEVEL ASSOCIATED WITH A WIRELESS TRANSMITTER						
117	SYSTEMS, METHODS AND DEVICES FOR REUSING SPECTRUM OF ANOTHER OPERATOR	12119803	05/13/2008	8031646	10/4/2011	ATC Technologies, LLC	037573/0939
118	SYSTEMS AND METHODS FOR INTER-SYSTEM SHARING OF SATELLITE COMMUNICATIONS FREQUENCIES WITHIN A COMMON FOOTPRINT	12495181	06/30/2009	8045975	10/25/2011	ATC Technologies, LLC	037573/0939
119	Radioterminals Including Satellite/Hands-Free Interlocks and Related Methods	12266822	11/07/2008	8050674	11/1/2011	ATC Technologies, LLC	037573/0939
120	SYSTEMS AND METHODS WITH DIFFERENT UTILIZATION OF SATELLITE FREQUENCY BANDS BY A SPACE-BASED NETWORK AND AN ANCILLARY TERRESTRIAL NETWORK	12609726	10/30/2009	8055257	11/8/2011	ATC Technologies, LLC	037573/0939
121	LOCATION-BASED BROADCAST MESSAGING FOR RADIOTERMINAL USERS	12100611	04/10/2008	8064378	11/22/2011	ATC Technologies, LLC	037573/0939
122	SYSTEMS AND METHODS FOR REDUCING POWER ROBBING IMPACT OF INTERFERENCE TO A SATELLITE	12145118	06/24/2008	8064824	11/22/2011	ATC Technologies, LLC	037573/0939
123	SYSTEMS AND METHODS FOR TERRESTRIAL	12551328	08/31/2009	8068828	11/29/2011	ATC Technologies, LLC	037573/0939

REF #	TITLE	APPL #	APPL DATE	REG #	REG DATE	REGISTERED OWNER	REEL/ FRAME
	REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM IN A TIME-DIVISION DUPLEX MODE						
124	PREDICTION OF UPLINK INTERFERENCE POTENTIAL GENERATED BY AN ANCILLARY TERRESTRIAL NETWORK AND/OR RADIOTERMINALS	12570936	09/30/2009	8073394	12/6/2011	ATC Technologies, LLC	037573/0939
125	Systems and Methods for Terrestrial Reuse of Cellular Satellite Frequency Spectrum in a Time-Division Duplex And/Or Frequency-Division Duplex Mode	12604994	10/23/2009	8078101	12/13/2011	ATC Technologies, LLC	037573/0939
126	Systems and Methods for Forward Link Closed Loop Beamforming	11624531	01/18/2007	8090041	1/3/2012	ATC Technologies, LLC	037573/0939
127	Co-Channel Wireless Communication Methods and Systems Using Relayed Wireless Communications	12714789	03/01/2010	8108004	1/31/2012	ATC Technologies, LLC	037573/0939
128	SYSTEMS AND METHODS FOR MOBILITY MANAGEMENT IN OVERLAID MOBILE COMMUNICATIONS SYSTEMS	13102718	05/06/2011	8131293	3/6/2012	ATC Technologies, LLC	037573/0939
129	Satellite-Band Spectrum Utilization for Reduced or Minimum Interference	13104117	05/10/2011	8145126	3/27/2012	ATC Technologies, LLC	037573/0939
130	Systems and Methods for Orthogonal Frequency Division Multiple Access (OFDMA) Communications Over Satellite Links	11759549	06/07/2007	8169955	5/1/2012	ATC Technologies, LLC	037573/0939
131	Satellite Assisted	11562094	11/21/2006	8170474	5/1/2012	ATC Technologies, LLC	037573/0939

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	Radioterminal Communications Systems and Methods						
132	Frequency-Dependent Filtering for Wireless Communications Transmitters	11457881	07/17/2006	8190114	5/29/2012	ATC Technologies, LLC	037573/0939
133	Iterative Antenna Beam Forming Systems/Methods	12603911	10/22/2009	8193975	6/5/2012	ATC Technologies, LLC	037573/0939
134	SATELLITE COMMUNICATIONS SYSTEMS AND METHODS USING RADIOTELEPHONE LOCATION-BASED BEAMFORMING	12341070	12/22/2008	8238818	8/7/2012	ATC Technologies, LLC	037573/0939
135	SYSTEMS AND METHODS FOR INTER-SYSTEM SHARING OF SATELLITE COMMUNICATIONS FREQUENCIES WITHIN A COMMON FOOTPRINT	13238480	09/21/2011	8238819	8/7/2012	ATC Technologies, LLC	037573/0939
136	SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR MOBILITY MANAGEMENT IN HYBRID SATELLITE/TERRESTRIAL WIRELESS COMMUNICATIONS SYSTEMS	12715070	03/01/2010	8249585	8/21/2012	ATC Technologies, LLC	037573/0939
137	Satellite Communications Systems and Methods Using Radiotelephone	11126799	05/11/2005	8265549	9/11/2012	ATC Technologies, LLC	037573/0939
138	Systems and Methods for Modifying Antenna Radiation Patterns of Peripheral Base Stations of a Terrestrial Network to Allow Reduced Interference	12391589	02/24/2009	8265637	9/11/2012	ATC Technologies, LLC	037573/0939
139	Satellite-band Spectrum Utilization	12255070	10/21/2008	8270898	9/18/2012	ATC Technologies, LLC	037573/0939

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	for Reduced or Minimum Interference						
140	RETAINING TRAFFIC CHANNEL ASSIGNMENTS FOR SATELLITE TERMINALS TO PROVIDE LOWER LATENCY COMMUNICATION SERVICES	12652307	01/05/2010	8274925	9/25/2012	ATC Technologies, LLC	037573/0939
141	Broadband Wireless Communications Systems and Methods Using Multiple Non-Contiguous Frequency Bands/Segments	12941696	11/08/2010	8285225	10/9/2012	ATC Technologies, LLC	037573/0939
142	SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM IN A TIME-DIVISION DUPLEX MODE	12540729	08/13/2009	8285278	10/9/2012	ATC Technologies, LLC	037573/0939
143	Antenna Beam Forming Systems, Methods and Devices Using Phase Adjusted Least Squares Beam Forming	12723823	03/15/2010	8339308	12/25/2012	ATC Technologies, LLC	037573/0939
144	RADIOTERMINALS AND OPERATING METHODS THAT RECEIVE MULTIPLE MEASURES OF INFORMATION FROM MULTIPLE SOURCES	13095553	04/27/2011	8340592	12/25/2012	ATC Technologies, LLC	037573/0939
145	INTEGRATED OR AUTONOMOUS SYSTEM AND METHOD OF SATELLITE-TERRESTRIAL FREQUENCY REUSE USING SIGNAL ATTENUATION AND/OR	12549548	08/28/2009	8369775	2/5/2013	ATC Technologies, LLC	037573/0939

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	BLOCKAGE, DYNAMIC ASSIGNMENT OF FREQUENCIES AND/OR HYSTERESIS						
146	APPARATUS AND METHODS FOR POWER CONTROL IN SATELLITE COMMUNICATIONS SYSTEMS WITH SATELLITE-LINKED TERRESTRIAL STATIONS	12578913	10/14/2009	8369776	2/5/2013	ATC Technologies, LLC	037573/0939
147	Satellite with Different Size Service Link Antennas and Radioterminal Communication Methods Using the Same	11036230	01/14/2005	8380186	2/19/2013	ATC Technologies, LLC	037573/0939
148	SYSTEMS AND METHODS FOR FACILITATING COMMUNICATIONS OVER A SHARED CHANNEL	12902444	10/12/2010	8385924	2/26/2013	ATC Technologies, LLC	037573/0939
149	COMMUNICATIONS SYSTEMS INCLUDING ADAPTIVE ANTENNA SYSTEMS AND METHODS FOR INTER-SYSTEM AND INTRA-SYSTEM INTERFERENCE REDUCTION	12752644	04/01/2010	8412126	4/2/2013	ATC Technologies, LLC	037573/0939
150	Systems, Methods and Devices For Overlaid Operations of Satellite and Terrestrial Wireless Communications Systems	12536084	08/05/2009	8433241	4/30/2013	ATC Technologies, LLC	037573/0939
151	SYSTEMS, METHODS AND TRANSCEIVERS FOR WIRELESS COMMUNICATION	12765946	04/23/2010	8494457	7/23/2013	ATC Technologies, LLC	037573/0939

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	S OVER DISCONTIGUOUS SPECTRUM SEGMENTS						
152	Systems, Methods and Network Components That Provide Different Satellite Spot Beam Return Carrier Groupings and Reuse Patterns	12699466	02/03/2010	8520561	8/27/2013	ATC Technologies, LLC	037573/0939
153	Apparatus and Methods for Mobility Management in Hybrid Terrestrial-Satellite Mobile Communications System	11770063	06/28/2007	8526941	9/3/2013	ATC Technologies, LLC	037573/0939
154	SYSTEMS AND METHODS FOR ADAPTIVE INTERFERENCE CANCELLATION BEAMFORMING	12891933	09/28/2010	8576769	11/5/2013	ATC Technologies, LLC	037573/0939
155	Location-Based Broadcast Messaging for Radioterminal Users	11291192	12/01/2005	8594704	11/26/2013	ATC Technologies, LLC	037573/0939
156	Communications Systems and Methods Including Emission Detection	13039683	03/03/2011	8655398	2/18/2014	ATC Technologies, LLC	037573/0939
157	Additional Intra- and/or Inter-System Interference Reducing Systems and Methods for Satellite Communications Systems	11036637	01/14/2005	8670705	3/11/2014	ATC Technologies, LLC	037573/0939
158	Adaptive Spotbeam Broadcasting, Systems, Methods and Devices for High Bandwidth Content Distribution Over Satellite	11669481	01/31/2007	8705436	4/22/2014	ATC Technologies, LLC	037573/0939
159	ADAPTIVE BEAM FORMING WITH MULTI-USER DETECTION AND INTERFERENCE REDUCTION IN SATELLITE	12689590	01/19/2010	8744360	6/3/2014	ATC Technologies, LLC	037573/0939

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	COMMUNICATION SYSTEMS AND METHODS						
160	SYSTEMS, METHODS AND TRANSCEIVERS OR WIRELESS COMMUNICATIONS OVER DISCONTIGUOUS SPECTRUM SEGMENTS	13924829	06/24/2013	8831122	9/9/2014	ATC Technologies, LLC	037573/0939
161	Systems and Methods for Controlling Base Station Sectors to Reduce Potential Interference with Low Elevation Satellites	11682683	03/06/2007	8923850	12/30/2014	ATC Technologies, LLC	037573/0939
162	Methods and Systems for Satellite Communications Employing Ground-Based Beam Forming with Spatially Distributed Hybrid Matrix Amplifiers	11751701	05/22/2007	9014619	4/21/2015	ATC Technologies, LLC	037573/0939
163	APPARATUS AND METHODS FOR POWER CONTROL IN SATELLITE COMMUNICATIONS SYSTEMS WITH SATELLITE-LINKED TERRESTRIAL STATIONS	13721338	12/20/2012	9037078	5/19/2015	ATC Technologies, LLC	037573/0939
165	Wireless Communications Systems and Methods Using Satellite-Linked Remote Terminal Interface Subsystems	11431160	05/09/2006	RE42261	3/29/2011	ATC Technologies, LLC	037573/0939
166	Filters for Combined Radiotelephone/GPS Terminals	11325696	01/04/2006	RE43137	1/24/2012	ATC Technologies, LLC	037573/0939
167	Filters for Combined Radiotelephone/GPS Terminals	12705135	02/12/2010	RE45107	9/2/2014	ATC Technologies, LLC	037573/0939
168	Mobile handset	29305825	03/28/2008	D597988	8/11/2009	ATC Technologies, LLC	037573/0939
169	Miniaturized quadrifilar helix antenna	11777031	07/12/2007	8022890	9/20/2011	ATC Technologies, LLC	037573/0939

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170	Wireless networks, devices and methods that establish asymmetric frequency division duplex (FDD) links using a downlink frequency carrier and multiple uplink frequency carriers	13563083	07/31/2012	9820276	11/14/2017	ATC Technologies, LLC	046901/0009 050195/0739
171	Power mode control for a communication device	11490166	07/21/2006	9161312	10/13/2015	ATC Technologies, LLC	046901/0009 050195/0739
172	Methods and devices for allocating resource blocks in an LTE network	13788031	03/07/2013	9271296	02/23/2016	ATC Technologies, LLC	046901/0009 050195/0739
173	Providing different transmit and/or receive modes in different sectors of a wireless base station	14548857	11/20/2014	9461806	10/04/2016	ATC Technologies, LLC	046901/0009 050195/0739
175	FREQUENCY DIVISION DUPLEX (FDD) RETURN LINK TRANSMIT DIVERSITY SYSTEMS, METHODS AND DEVICES USING FORWARD LINK SIDE INFORMATION	12720189	03/09/2010	10110288	10/23/2018	ATC Technologies, LLC	046901/0009 050195/0739 049931/0150
176	SAME CHANNEL REPEATER FOR SATELLITE AND TERRESTRIAL LINKS	15589512	05/08/2017	10340997	07/02/2019	ATC Technologies, LLC	046901/0009 050195/0739 051026/0494
177	Multipath TCP over Dual Networks	15998431	8/16/2018	N/A	N/A	ATC Technologies, LLC	046901/0009 050195/0739 049931/0150
182	DEVICES, SYSTEMS, AND METHODS FOR AUTONOMOUSLY LANDING UNMANNED AERIAL VEHICLES WITH COLLABORATIVE INFORMATION SHARING	16516937	07/19/2019	N/A	N/A	ATC Technologies, LLC	051026/0494

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183	NETWORK DEVICE DATA EXCHANGE COORDINATION	16263994	01/31/2019	N/A	N/A	ATC Technologies, LLC	051026/0494
184	APPLICATION SERVICE VIRTUAL CIRCUIT	16264004	01/31/2019	N/A	N/A	ATC Technologies, LLC	051026/0494
185	DEVICES, METHODS, AND SYSTEMS FOR UPLINK SYNCHRONIZATION IN TIME DIVISION MULTIPLE ACCESS (TDMA) SATELLITE NETWORK	16405369	05/07/2019	N/A	N/A	ATC Technologies, LLC	051026/0494
186	SYSTEMS AND METHODS FOR FREQUENCY DRIFT COMPENSATION FOR GPS RECEIVERS	15265087	09/14/2016	N/A	N/A	ATC Technologies, LLC	051026/0494
187	SYSTEM AND METHODS FOR WEATHER SATELLITE CONTENT DELIVERY	15875601	01/19/2018	N/A	N/A	ATC Technologies, LLC	051026/0494
188	DEVICES, METHODS, AND SYSTEMS WITH DYNAMIC SPECTRUM SHARING	15997603	06/04/2018	N/A	N/A	ATC Technologies, LLC	049931/0150 051026/0494
189	DEVICES, SYSTEMS, AND METHODS FOR CHANNEL ACCESS IN DYNAMIC SPECTRUM SHARING	15995788	06/01/2018	N/A	N/A	ATC Technologies, LLC	051026/0494
190	LOCALIZED CONTENT DELIVERY PLATFORM	16189651	11/13/2018	10615866	04/07/2020	ATC Technologies, LLC	049931/0150
191	WIRELESS COMMUNICATION SYSTEMS WITH CODE DIVISION MULTIPLE ACCESS AND	16206606	11/30/2018	10666316	05/26/2020	ATC Technologies, LLC	049931/0150

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	INTERFERENCE AVOIDANCE						
192	SYSTEMS AND METHODS FOR LOCATING AND RESOLVING INADVERTENT INTERFERENCE WITH A THIRD-PARTY COMMUNICATION DEVICE	16146661	09/28/2018	N/A	N/A	ATC Technologies, LLC	049931/0150
205	NETWORK DESIGN IN WIRELESS COMMUNICATIONS	13804865	03/14/2013	9380465	06/28/2016 Assigned 09/03/2019	ATC Technologies, LLC	051026/0494
206	DEVICES, SYSTEMS, AND METHODS FOR RESOURCE ALLOCATION OF SHARED SPECTRUM	15982980	05/17/2018	10397797	08/27/2019	ATC Technologies, LLC	049931/0150 051026/0494
208	COMMUNICATING WITH UNMANNED AERIAL VEHICLES AND AIR TRAFFIC CONTROL	15954001	04/16/2018	10531505	01/07/2020	ATC Technologies, LLC	049931/0150
214	Methods and Systems of Self-Organizing Satellite-Terrestrial Networks	16881322	05/22/2020	N/A	N/A	ATC Technologies, LLC	

CANADIAN PATENTS AND APPLICATIONS:

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
ATC TECHNOLOGIES, LLC	WIRELESS NETWORKS, DEVICES AND METHODS THAT ESTABLISH ASYMMETRIC FREQUENCY DIVISION DUPLEX (FDD) LINKS USING A DOWNLINK FREQUENCY CARRIER AND MULTIPLE UPLINK FREQUENCY CARRIERS	2013-06-18	2878445
ATC TECHNOLOGIES, LLC	METHODS AND DEVICES FOR ALLOCATING RESOURCE BLOCKS IN AN LTE NETWORK	2014-03-04	2899193
ATC TECHNOLOGIES, LLC	AGGREGATE RADIATED POWER CONTROL FOR MULTI-BAND/MULTI-MODE SATELLITE RADIOTELEPHONE COMMUNICATIONS SYSTEMS AND METHODS	2004-04-14	2989660
ATC TECHNOLOGIES,	A SAME CHANNEL REPEATER FOR SATELLITE AND	2017-05-08	3023461

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
LLC	TERRESTRIAL LINKS		
ATC TECHNOLOGIES, LLC	SYSTEM AND METHODS FOR WEATHER SATELLITE CONTENT DELIVERY	2018-01-23	2992779
ATC TECHNOLOGIES, LLC	COORDINATED SATELLITE-TERRESTRIAL FREQUENCY REUSE	2011-09-20	2328003
ATC TECHNOLOGIES, LLC	DEVICES, METHODS, AND SYSTEMS WITH DYNAMIC SPECTRUM SHARING	2018-06-04	3064276
ATC TECHNOLOGIES, LLC	DEVICES, SYSTEMS, AND METHODS FOR CHANNEL ACCESS IN DYNAMIC SPECTRUM SHARING	2018-06-01	3064272
ATC TECHNOLOGIES, LLC	DEVICES, SYSTEMS, AND METHODS FOR RESOURCE ALLOCATION OF SHARED SPECTRUM	2018-05-17	3059966
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR FREQUENCY DRIFT COMPENSATION FOR RADIO RECEIVERS	2016-12-21	3009003
ATC TECHNOLOGIES, LLC	CO-CHANNEL WIRELESS COMMUNICATION METHODS AND	2016-10-11	2863514

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
	SYSTEMS USING NONSYMMETRICAL ALPHABETS		
ATC TECHNOLOGIES, LLC	ANTENNA BEAM FORMING SYSTEMS, METHODS AND DEVICES USING PHASE ADJUSTED LEAST SQUARES BEAM FORMING	2017-06-27	2755248
ATC TECHNOLOGIES, LLC	SYSTEMS, METHODS AND NETWORK COMPONENTS THAT PROVIDE DIFFERENT SATELLITE SPOT BEAM RETURN CARRIER GROUPINGS AND REUSE PATTERNS	2015-10-20	2753882
ATC TECHNOLOGIES, LLC	SYSTEMS, METHODS AND DEVICES FOR OVERLAID OPERATION OF SATELLITE AND TERRESTRIAL WIRELESS COMMUNICATIONS SYSTEMS	2017-01-03	2732621
ATC TECHNOLOGIES, LLC	SATELLITE RADIOTELEPHONE SYSTEMS, METHODS, COMPONENTS AND DEVICES INCLUDING GATED RADIOTELEPHONE TRANSMISSIONS TO	2011-11-01	2718820

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	ANCILLARY TERRESTRIAL COMPONENTS		
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR TERRESTRIAL USE OF CELLULAR SATELLITE FREQUENCY SPECTRUM	2011-05-17	2718607
ATC TECHNOLOGIES, LLC	SATELLITE COMMUNICATIONS APPARATUS AND METHODS USING ASYMMETRICAL FORWARD AND RETURN LINK FREQUENCY REUSE	2014-06-03	2607301
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM IN A TIME-DIVISION DUPLEX AND/OR FREQUENCY-DIVISION DUPLEX MODE	2016-06-07	2588191
ATC TECHNOLOGIES, LLC	PREDICTION OF UPLINK INTERFERENCE POTENTIAL GENERATED BY AN ANCILLARY TERRESTRIAL	2016-09-06	2586590

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
	NETWORK AND/OR RADIOTERMINALS		
ATC TECHNOLOGIES, LLC	LOCATION-BASED BROADCAST MESSAGING FOR RADIOTERMINAL USERS	2014-04-08	2586024
ATC TECHNOLOGIES, LLC	RADIO COMMUNICATIONS SYSTEM AND METHOD WITH DIVERSITY OPERATION IN A MULTI-BAND SATELLITE SYSTEM WITH OR WITHOUT AN ANCILLARY TERRESTRIAL COMPONENT	2012-09-18	2554584
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR MODIFYING ANTENNA RADIATION PATTERNS OF PERIPHERAL BASE STATIONS OF A TERRESTRIAL NETWORK TO ALLOW REDUCED INTERFERENCE	2014-09-30	2534269
ATC TECHNOLOGIES, LLC	SATELLITE ASSISTED PUSH-TO-SEND RADIOTERMINAL SYSTEMS AND METHODS	2013-07-23	2516760

CURRENT OWNER/APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
ATC TECHNOLOGIES, LLC	STAGGERED SECTORIZATION FOR TERRESTRIAL REUSE OF SATELLITE FREQUENCIES	2012-03-13	2489387
ATC TECHNOLOGIES, LLC	SPACE-BASED NETWORK ARCHITECTURES FOR SATELLITE ADIOTELEPHONE SYSTEMS	2010-06-08	2460494
ATC TECHNOLOGIES, LLC	ADDITIONAL SYSTEMS AND METHODS FOR MONITORING TERRESTRIALLY REUSED SATELLITE FREQUENCIES TO REDUCE POTENTIAL INTERFERENCE	2011-01-11	2460491
ATC TECHNOLOGIES, LLC	SPATIAL GUARDBANDS FOR TERRESTRIAL REUSE OF SATELLITE FREQUENCIES	2012-01-03	2460323
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR SATELLITE FREQUENCY SPECTRUM	2012-10-23	2459549
ATC TECHNOLOGIES,	SYSTEM AND METHOD OF TERRESTRIAL	2007-07-24	2428702

CURRENT OWNER/APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
LLC	FREQUENCY REUSE USING SIGNAL ATTENUATION AND DYNAMIC CHANNEL ASSIGNMENT		
ATC TECHNOLOGIES, LLC	CO-CHANNEL WIRELESS COMMUNICATION METHODS AND SYSTEMS USING NONSYMMETRICAL ALPHABETS	2016-11-15	2863510
ATC TECHNOLOGIES, LLC	FREQUENCY DIVISION DUPLEX (FDD) RETURN LINK TRANSMIT DIVERSITY SYSTEMS, METHODS AND DEVICES USING FORWARD LINK SIDE INFORMATION	2018-03-20	2785797
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR ADAPTIVE INTERFERENCE CANCELLATION BEAMFORMING	2017-04-04	2769828
ATC TECHNOLOGIES, LLC	ITERATIVE ANTENNA BEAM FORMING SYSTEMS/METHODS	2016-06-14	2743289
ATC TECHNOLOGIES, LLC	SATELLITE COMMUNICATIONS SYSTEMS AND METHODS USING SUBSTANTIALLY CO-LOCATED FEEDER	2014-10-07	2607302

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
	LINK ANTENNAS		
ATC TECHNOLOGIES, LLC	METHODS, RADIOTERMINALS, AND ANCILLARY TERRESTRIAL COMPONENTS FOR COMMUNICATING USING SPECTRUM ALLOCATED TO ANOTHER SATELLITE OPERATOR	2014-08-12	2600652
ATC TECHNOLOGIES, LLC	SATELLITES USING INTER-SATELLITE LINKS TO CREATE INDIRECT FEEDER LINK PATHS	2016-06-07	2597720
ATC TECHNOLOGIES, LLC	ADAPTIVE BEAM FORMING WITH MULTI-USER DETECTION AND INTERFERENCE REDUCTION IN SATELLITE COMMUNICATION SYSTEMS AND METHODS	2015-06-23	2588192
ATC TECHNOLOGIES, LLC	SATELLITE COMMUNICATIONS SYSTEMS, COMPONENTS AND METHODS FOR OPERATING SHARED SATELLITE GATEWAYS	2013-03-19	2581601

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
ATC TECHNOLOGIES, LLC	SATELLITE-BAND SPECTRUM UTILIZATION FOR REDUCED OR MINIMUM INTERFERENCE	2016-09-20	2576521
ATC TECHNOLOGIES, LLC	SATELLITE/HANDS-FREE INTERLOCK SYSTEMS AND/OR COMPANION DEVICES FOR RADIOTERMINALS AND RELATED METHODS	2012-12-18	2554857
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR INTER-SYSTEM SHARING OF SATELLITE COMMUNICATIONS FREQUENCIES WITHIN A COMMON FOOTPRINT	2014-05-27	2544567
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR MOBILITY MANAGEMENT IN OVERLAID MOBILE COMMUNICATIONS SYSTEMS	2013-04-30	2542027
ATC TECHNOLOGIES, LLC	INTRA- AND/OR INTER-SYSTEM INTERFERENCE REDUCING SYSTEMS AND METHODS FOR SATELLITE COMMUNICATIONS	2013-04-16	2534079

CURRENT OWNER/APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
	SYSTEMS		
ATC TECHNOLOGIES, LLC	CO-CHANNEL WIRELESS COMMUNICATION METHODS AND SYSTEMS USING NONSYMMETRICAL ALPHABETS	2014-11-18	2517067
ATC TECHNOLOGIES, LLC	AGGREGATE RADIATED POWER CONTROL FOR MULTI-BAND/MULTI-MODE SATELLITE RADIOTELEPHONE COMMUNICATIONS SYSTEMS AND METHODS	2018-02-13	2515209
ATC TECHNOLOGIES, LLC	NETWORK-ASSISTED GLOBAL POSITIONING SYSTEMS, METHODS AND TERMINALS INCLUDING DOPPLER SHIFT AND CODE PHASE ESTIMATES	2017-12-19	2512271
ATC TECHNOLOGIES, LLC	FILTERS FOR COMBINED RADIOTELEPHONE/GPS TERMINALS	2012-07-10	2489395
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR REDUCING SATELLITE FEEDER LINK BANDWIDTH/CARRIERS IN CELLULAR	2013-04-30	2484232

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
	SATELLITE SYSTEMS		
ATC TECHNOLOGIES, LLC	WIRELESS COMMUNICATIONS SYSTEM AND METHOD USING SATELLITE-LINKED REMOTE TERMINAL INTERFACE SUBSYSTEM	2012-05-29	2476191
ATC TECHNOLOGIES, LLC	METHODS AND SYSTEMS FOR MODIFYING SATELLITE ANTENNA CELL PATTERNS IN RESPONSE TO TERRESTRIAL REUSE OF SATELLITE FREQUENCIES	2012-11-06	2460495
ATC TECHNOLOGIES, LLC	MULTI-BAND/MULTI-MODE SATELLITE RADIOTELEPHONE COMMUNICATIONS SYSTEMS AND METHODS	2010-06-22	2460361
ATC TECHNOLOGIES, LLC	SYSTEMS AND METHODS FOR MONITORING TERRESTRIALLY REUSED SATELLITE FREQUENCIES TO REDUCE POTENTIAL INTERFERENCE	2010-06-01	2460325
ATC TECHNOLOGIES,	COORDINATED SATELLITE-TERRESTRIAL	2007-01-30	2381811

CURRENT OWNER/ APPLICANT	PATENT	REGISTRATION DATE	REGISTRATION NO./ APPLICATION NO.
LLC	FREQUENCY REUSE		
ATC TECHNOLOGIES, LLC	COORDINATED SATELLITE-TERRESTRIAL FREQUENCY REUSE	2011-05-10	2334447
ATC TECHNOLOGIES, LLC	RETAINING TRAFFIC CHANNEL ASSIGNMENTS FOR SATELLITE TERMINALS TO PROVIDE LOWER LATENCY COMMUNICATION SERVICES	2017-12-12	2786105
ATC TECHNOLOGIES, LLC	SYSTEMS, DEVICES, AND METHODS FOR VEHICLE SPEED CONTROL	2018-08-30	3074504

CANADIAN TRADEMARKS AND APPLICATIONS

	Current Owner/ Applicant	Trademark	Registration Date	Application No.	Registration No.
1.	LIGADO NETWORKS LLC	LIGHTSQUARE D Design	2013-05-29	1482923	TMA851910
2.	LIGADO NETWORKS LLC	SKYTERRA	2010-08-26	1333405	TMA775583
3.	LIGADO NETWORKS LLC	SKYCELL	2007-06-07	1286638	TMA689301
4.	LIGADO NETWORKS LLC	COMMUNICATE UR MSAT	1995-10-27	0759752	TMA449419
5.	LIGADO NETWORKS LLC	LIGHTSQUARE D	2013-05-29	1482924	TMA851966
6.	LIGADO NETWORKS LLC	SMART	2010-12-01	1363359	TMA783874
7.	LIGADO NETWORKS LLC	KEEP ON TRACKING	2004-01-08	1116581	TMA598916
8.	LIGADO NETWORKS LLC	MSAT	1995-10-27	0759751	TMA449418
9.	LIGADO NETWORKS LLC	MSAT COMMUNICAT OR	1995-10-27	0759753	TMA449420