

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	SAMSUNG ELECTRO-MECHANICS CO., LTD	12/23/2015
RECEIVING PARTY DATA		
Name:	SOLUM CO., LTD	
Street Address:	B3-4F, 150 MAEYEONG-RO (MAETAN-DONG), YEONGTONG-GU, GYEONGGI-DO 16674	
City:	SUWON-SI	
State/Country:	KOREA, REPUBLIC OF	
PROPERTY NUMBERS Total: 1		
	Property Type	Number
	Application Number:	13175471
CORRESPONDENCE DATA		
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<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>		
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SIGNATURE:	/Charles Y. Park/	
DATE SIGNED:	01/05/2016	
Total Attachments: 7 source=Solum#page1.tif source=Solum#page2.tif source=Solum#page3.tif source=Solum#page4.tif source=Solum#page5.tif source=Solum#page6.tif source=Solum#page7.tif		

ASSIGNMENT

For valuable consideration, effective September 1, 2015,

SAMSUNG ELECTRO-MECHANICS CO., LTD., a Republic of Korea corporation having principal executive offices or place of business at 150, Maeyoung-ro (Maetan-dong), Yeongtong-gu, Suwon-si, Gyeonggi-do 16674, Republic of Korea (hereinafter called "the Assignor"),

hereby assign to:

SOLUM Co., Ltd., a Republic of Korea corporation having principal executive offices or place of business at: B3-4F, 150 Maeyoung-ro (Maetan-dong), Yeongtong-gu, Suwon-si, Gyeonggi-do 16674, Republic of Korea; and

its successors and assigns (collectively hereinafter called "the Assignee"), the entire right, title and interest throughout the world in the inventions and improvements which are subject of U.S. Patent Applications:

Application No.	Filing Date	Title
12/622,381	11-19-2009	INTERMEDIATE FREQUENCY FILTER HAVING VARIABLE PASS BAND
13/734,725	01-04-2013	PWM CONTROL CIRCUIT, FLYBACK CONVERTER AND METHOD FOR CONTROLLING PWM
13/309,310	12-01-2011	CONTROL CIRCUIT OF LLC RESONANT CONVERTER AND LLC RESONANT CONVERTER USING THE SAME
13/723,163	12-20-2012	PWM DRIVING CIRCUIT AND PWM DRIVING METHOD
13/842,163	03-15-2013	GATE DRIVER
13/956,298	07-31-2013	SWITCHING CONVERTER AND AC ADAPTER USING THE SAME
14/146,229	01-02-2014	VOLTAGE CONTROL CIRCUIT FOR DIMMER AND DIMMING METHOD USING THE SAME
13/826,872	03-14-2013	AVERAGE CURRENT CONTROLLER, AVERAGE CURRENT CONTROL METHOD AND BUCK CONVERTER USING THE AVERAGE CURRENT CONTROLLER
14/472,425	08-29-2014	CIRCUIT FOR GENERATING REFERENCE SIGNAL FOR CONTROLLING PEAK CURRENT OF CONVERTER SWITCH, ISOLATED CONVERTER AND METHOD FOR GENERATING REFERENCE SIGNAL FOR CONTROLLING PEAK CURRENT OF CONVERTER SWITCH
14/536,065	11-07-2014	POWER SUPPLY
14/582,200	12-24-2014	POWER SUPPLY
08/976,545	11-24-1997	POWER FACTOR CORRECTION CONVERTER

14/071,349	11-04-2013	FRONT MODULE HAVING TRIPLEXER FOR MULTIMEDIA OVER COAX ALLIANCE
13/221,768	08-30-2011	TERRESTRIAL BROADCASTING RECEIVING MODULE
14/625,622	02-18-2015	DETECTOR HAVING OFFSET CANCELLATION FUNCTION, AND POWER FACTOR CORRECTION APPARATUS AND POWER SUPPLYING APPARATUS HAVING THE SAME
14/585,186	12-30-2014	POWER DRIVER FOR LIGHT EMITTING DIODE ILLUMINATION AND CONTROL METHOD THEREOF
14/612,240	02-02-2015	MULTI-OUTPUT POWER SUPPLY APPARATUS AND OUTPUT CIRCUIT THEREOF
14/617,906	02-09-2015	CONTROL VOLTAGE ADJUSTING CIRCUIT, FEEDBACK SIGNAL GENERATING CIRCUIT, AND CONTROL CIRCUIT INCLUDING THE SAME
14/572,459	12-16-2014	POWER CONVERTER AND DRIVING METHOD FOR THE SAME
14/550,828	11-21-2014	OFF SIGNAL GENERATOR AND POWER CONVERTER INCLUDING THE SAME
12/473,712	05-28-2009	LED DRIVING CIRCUIT
12/431,973	04-29-2009	LAMP DRIVING CIRCUIT
12/251,176	10-14-2008	LIGHT EMITTING DIODE DRIVING CIRCUIT HAVING VOLTAGE DETECTION
12/560,915	09-16-2009	APPARATUS FOR DRIVING MULTI-LIGHT EMITTING DEVICES
12/578,823	10-14-2009	APPARATUS FOR DRIVING LIGHT EMITTING DEVICE
13/088,575	04-18-2011	TRANSFORMER AND TRANSFORMER ASSEMBLY
12/689,030	01-18-2010	DRIVER FOR PLASMA DISPLAY PANEL HAVING SEPARATED BOARD STRUCTURE
12/629,741	12-02-2009	AC DETECTION CIRCUIT FOR POWER SUPPLY
11/565,549	11-30-2006	FLYBACK DC/DC CONVERTER USING CLAMP DIODE
12/770,953	04-30-2010	APPARATUS FOR DRIVING LIGHT EMITTING DEVICE USING PULSE-WIDTH MODULATOR
12/140,980	06-17-2008	STEP ATTENUATOR
12/649,418	12-30-2009	AC DETECTION CIRCUIT FOR POWER SUPPLY
13/079,253	04-04-2011	PLANAR TRANSFORMER AND METHOD OF MANUFACTURING THE SAME
13/094,335	04-26-2011	POWER SUPPLY AND DISPLAY DEVICE INCLUDING THE SAME
11/565,522	11-30-2006	TELEPHONE SIGNAL CANCELLATION CIRCUIT, DIGITAL BROADCASTING RECEPTION CIRCUIT AND PORTABLE DIGITAL BROADCASTING RECEPTION APPARATUS
12/044,683	03-07-2008	BACKLIGHT DRIVING SYSTEM FOR LIQUID CRYSTAL DISPLAY
12/197,150	08-22-2008	ACTIVE BALUN CIRCUIT
10/998,932	11-30-2004	FLYBACK CONVERTER WITH SYNCHRONOUS RECTIFIER
11/750,195	05-17-2007	SINGLE PACKAGE TELEVISION TUNING APPARATUS AND

		TELEVISION RECEIVER INCLUDING THE SAME
13/028,618	02-16-2011	DEVICE FOR CONTROLLING CURRENT OF LED
11/946,700	11-28-2007	BACKLIGHT UNIT HAVING PROTECTION CIRCUIT USING INDUCED VOLTAGE DETECTION
12/137,438	06-11-2008	MULTI-OUTPUT TRANSFORMER
12/640,231	12-17-2009	TRANSFORMER AND TRANSFORMER ASSEMBLY
12/246,907	10-07-2008	SWITCHING MODE POWER SUPPLY CIRCUIT
12/629,552	12-02-2009	MODULE FOR CONTROLLING LIGHT EMITTING DIODE CURRENT FOR SELECTIVE FEEDBACK, APPARATUS AND METHOD FOR DRIVING LIGHT EMITTING DIODES USING THE SAME
13/407,992	02-29-2012	CHOKE COIL
12/057,101	03-27-2008	APPARATUS AND METHOD OF REMOVING INTERFERENCE NOISE IN PERSONAL COMMUNICATION TERMINAL
12/254,520	10-20-2008	APPARATUS FOR DRIVING LIGHT EMITTING ELEMENT
11/747,533	05-11-2007	MOBILE TERMINAL AND METHOD OF REDUCING INTERFERING PHASE-NOISE IN THE MOBILE TERMINAL
12/243,837	10-01-2008	MULTI-OUTPUT DC/DC CONVERTER
13/762,056	02-07-2013	POWER MODULE AND DISPLAY DEVICE
12/208,019	09-10-2008	WIDE-BAND VOLTAGE CONTROLLED OSCILLATOR
12/205,192	09-05-2008	FREQUENCY SYNTHESIZER HAVING MULTI-BAND VOLTAGE CONTROLLED OSCILLATOR
12/885,903	09-20-2010	LIGHT EMITTING DIODE DRIVER
13/181,045	07-12-2011	POWER SUPPLY DEVICE FOR DRIVING LIGHT EMITTING DIODE
13/409,962	03-01-2012	TRANSFORMER AND DISPLAY DEVICE USING THE SAME
13/533,596	06-26-2012	TRANSFORMER AND POWER MODULE HAVING THE SAME
13/342,676	01-03-2012	WIRELESS COMMUNICATIONS TERMINAL HAVING RF DIRECT WAKEUP FUNCTION AND WAKEUP METHOD THEREOF
13/324,120	12-13-2011	TRANSFORMER AND FLAT PANEL DISPLAY DEVICE INCLUDING THE SAME
13/175,640	07-01-2011	TRANSFORMER AND FLAT PANEL DISPLAY DEVICE INCLUDING THE SAME
13/443,602	04-10-2012	TRANSFORMER AND DISPLAY DEVICE USING THE SAME
13/175,660	07-01-2011	TRANSFORMER
13/175,471	07-01-2011	TRANSFORMER
13/175,632	07-01-2011	TRANSFORMER AND FLAT PANEL DISPLAY DEVICE INCLUDING THE SAME
13/477,893	05-22-2012	TRANSFORMER AND DISPLAY DEVICE USING THE SAME
13/175,678	07-01-2011	TRANSFORMER AND FLAT PANEL DISPLAY DEVICE INCLUDING THE SAME
13/442,496	04-09-2012	TRANSFORMER AND DISPLAY DEVICE USING THE SAME
13/220,188	08-29-2011	BOOST CONVERTER FOR REDUCING VOLTAGE STRESS

13/477,880	05-22-2012	TRANSFORMER AND DISPLAY DEVICE USING THE SAME
13/220,041	08-29-2011	LED DRIVING APPARATUS AND METHOD
13/449,040	04-17-2012	COIL COMPONENT AND METHOD OF MANUFACTURING THE SAME
13/620,290	09-14-2012	LIGHT EMITTING DIODE DRIVING APPARATUS
13/763,985	02-11-2013	LIGHT EMITTING DIODE DRIVING APPARATUS
13/494,543	06-12-2012	LIGHT EMITTING DIODE DRIVING APPARATUS
14/294,856	06-03-2014	APPARATUS AND METHOD FOR DRIVING LED
12/473,643	05-28-2009	CONNECTOR
14/163,902	01-24-2014	LIGHT EMITTING DIODE DRIVER
13/954,330	07-30-2013	DIMMING CONTROL APPARATUS, LIGHT SYSTEM DRIVING APPARATUS AND DIMMING CONTROL METHOD
13/895,234	05-15-2013	POWER SUPPLY APPARATUS
14/594,055	01-09-2015	CHOKE COIL
14/103,722	12-11-2013	VOLTAGE CONTROL CIRCUIT WITH TEMPERATURE COMPENSATION FUNCTION
14/281,426	05-19-2014	APPARATUS AND METHOD FOR SEARCHING BROADCAST CHANNELS
14/273,394	05-08-2014	LED LIGHTING SYSTEM AND METHOD OF CONTROLLING THE SAME
14/514,166	10-14-2014	LIGHT EMITTING DIODE DRIVER
14/528,826	10-30-2014	SWITCHING MODE POWER SUPPLY APPARATUS
14/071,123	11-04-2013	MEMORY CARD READER DEVICE HAVING TELEVISION BROADCAST SIGNAL RECEPTION FUNCTION
14/290,442	05-29-2014	COMMUNAL TELEVISION RECEIVING SYSTEM AND METHOD THEREOF
13/929,343	06-27-2013	LIGHT DRIVING APPARATUS AND DRIVING METHOD THEREFOR
14/029,386	09-17-2013	LIGHT EMITTING DIODE POWER SUPPLY APPARATUS
14/273,236	05-08-2014	INTEGRATED CIRCUIT
13/929,382	06-27-2013	SINGLE STAGE FORWARD-FLYBACK CONVERTER AND POWER SUPPLY APPARATUS FOR LIGHT EMITTING DIODE
13/838,007	03-15-2013	MULTI-OUTPUT POWER SUPPLY APPARATUS ENHANCING A POWER IMBALANCE BETWEEN MULTIPLE OUTPUTS
14/526,171	10-28-2014	COIL COMPONENT AND METHOD OF MANUFACTURING THE SAME
13/494,497	06-12-2012	LIGHT EMITTING DIODE DRIVING APPARATUS
14/045,933	10-04-2013	ELECTRONIC PAPER PANEL AND ELECTRONIC SHELF LABEL SYSTEM AND METHOD FOR DRIVING THEREOF
13/764,609	02-11-2013	ELECTRONIC TAG DEVICE, ELECTRONIC SHELF LABELING SYSTEM, AND DISPLAY REFRESH METHOD OF ELECTRONIC TAG DEVICE
14/137,549	12-20-2013	OVERLOAD AND SHORT-CIRCUIT SENSING CIRCUIT AND CONVERTER PROTECTING CIRCUIT AND METHOD
13/725,469	12-21-2012	ELECTROMAGNETIC INTERFERENCE FILTER, AND POWER

		SUPPLY APPARATUS AND DISPLAY APPARATUS INCLUDING THE SAME
13/763,956	02-11-2013	MULTI-OUTPUT POWER SUPPLY
14/033,426	09-20-2013	POWER SUPPLY DEVICE
14/282,796	05-20-2014	CIRCUIT FOR DRIVING POWER SWITCH, POWER SUPPLY APPARATUS AND METHOD FOR DRIVING POWER SWITCH
14/035,315	09-24-2013	SWITCHED-MODE POWER SUPPLY USING VARIABLE BIAS CURRENT
14/262,390	04-25-2014	LIGHT EMITTING DIODE DRIVING APPARATUS
14/168,874	01-30-2014	CHOKE COIL AND POWER SUPPLY DEVICE INCLUDING THE SAME
14/293,708	06-02-2014	POWER SUPPLY DEVICE
14/316,683	06-26-2014	LED CONTROLLING DEVICE
14/297,068	06-05-2014	CHANNEL SEARCHING METHOD AND APPARATUS FOR RECEIVING BROADCAST SIGNAL USING THE SAME
14/502,497	09-30-2014	MOTOR DRIVING APPARATUS AND MOTOR DRIVING METHOD
14/289,302	05-28-2014	COIL COMPONENT AND ELECTRONIC MODULE USING THE SAME
14/290,508	05-29-2014	ELECTRONIC SHELF LABEL SYSTEM AND COMMUNICATIONS METHOD THEREOF
14/582,802	12-24-2014	WIRELESS COMMUNICATIONS APPARATUS AND METHOD
14/265,974	04-30-2014	APPARATUS AND METHOD FOR SEARCHING BROADCAST CHANNEL
14/578,169	12-19-2014	ELECTRONIC SHELF LABEL HAVING MULTIPLE DISPLAY AREAS, ELECTRONIC SHELF LABEL SYSTEM, AND OPERATING METHOD THEREOF
29/513,766	01-05-2015	GATEWAY FOR ELECTRONIC SHELF LABEL SYSTEM
13/835,438	03/15/2013	ELECTRONIC SHELF LABEL SYSTEM AND METHOD OF OPERATING THE SAME
14/746,520	06/22/2015	DISPLAY DRIVING APPARATUS AND ELECTRONIC DEVICE INCLUDING THE SAME
14/669,222	03/26/2015	ELECTRONIC SHELF LABEL HAVING NEAR FIELD COMMUNICATION (NFC) FUNCTION EMBEDDED THEREIN
14/681,325	04/08/2015	POWER CONVERTER AND DRIVING METHOD FOR THE SAME
14/803,159	07/20/2015	POWER CONVERTER AND METHOD FOR DRIVING THE SAME
14/585,363	12/30/2014	ELECTRONIC INFORMATION LABEL, SERVER, AND METHOD OF TRANSMITTING CALL SIGNAL
14/585,462	12/30/2014	ELECTRONIC INFORMATION LABEL SYSTEM WITH ADJUSTABLE WAKE-UP UPDATE PERIOD
14/664,191	03/20/2015	APPARATUS FOR DRIVING INTERIOR PERMANENT MAGNET SYNCHRONOUS MOTOR AND METHOD OF

		CONTROLLING THE APPARATUS
14/815,284	07/31/2015	POWER CONVERTER AND DRIVING METHOD FOR THE SAME
14/750,223	06/25/2015	INFORMATION UPDATING METHOD OF ELECTRONIC LABEL, AND SYSTEM THEREOF
14/713,482	05/15/2015	CONTROL DEVICE OF SYNCHRONOUS RECTIFIER AND POWER SUPPLY
14/682,256	04/09/2015	ELECTRONIC SHELF LABEL TAG AND ELECTRONIC SHELF LABEL SYSTEM
14/710,651	05/13/2015	DEVICE FOR DRIVING LIGHT EMITTING DIODE MODULE AND METHOD FOR DRIVING LIGHT EMITTING DIODE MODULE
14/802,523	07/17/2015	SIGNAL GENERATOR AND PFC CONVERTER USING THE SAME
14/816,383	08/03/2015	LED DRIVER AND DISPLAY DEVICE FOR USING THE SAME
14/805,577	07/22/2015	GATEWAY, ELECTRONIC INFORMATION LABEL, AND METHOD FOR REGISTERING ELECTRONIC INFORMATION LABEL
14/745,907	06/22/2015	ELECTRONIC INFORMATION LABEL WITH IMPROVED PRODUCT PROMOTION FUNCTION
14/585,417	12/30/2014	ELECTRONIC INFORMATION LABEL TAG AND ELECTRONIC INFORMATION LABEL MANAGEMENT SYSTEM INCLUDING THE SAME
14/658,791	03/16/2015	POWER SUPPLY DEVICE AND POWER SUPPLY METHOD
14/818,644	08/05/2015	POWER CONVERTER AND DRIVING METHOD FOR THE SAME
14/721,373	05/26/2015	ELECTRONIC SHELF LABEL TAG, ELECTRONIC SHELF LABEL SYSTEM FOR TIME-DIVISION TRANSMISSION OF DISPLAY DATA AND CHANGE COMMAND DATA, AND OPERATING METHOD THEREOF
14/722,814	05/27/2015	INVENTORY MANAGEMENT APPARATUS AND METHOD
14/826,926	08/14/2015	POWER SUPPLY AND POWER SUPPLYING METHOD
14/813,798	07/30/2015	SWITCHING CONTROLLING CIRCUIT, CONVERTER USING THE SAME, AND SWITCHING CONTROLLING METHOD
14/816,792	08/03/2015	SWITCHING CONTROLLING CIRCUIT, CONVERTER USING THE SAME, AND SWITCHING CONTROLLING METHOD
14/822,132	08/10/2015	CONVERTER
14/685,100	04/09/2015	ELECTRONIC INFORMATION LABEL ACCESSORY
14/663,081	03/19/2015	ESD PROTECTION CIRCUIT
14/841,871	09/01/2015	RADIO NETWORK SYSTEM AND OPERATION METHOD THEREOF
29/526,081	05/06/2015	ELECTRONIC LABEL
29/526,161	05/07/2015	ELECTRONIC LABEL
14/849,965	09/10/2015	ELECTRONIC PAPER DISPLAY AND METHOD OF OPERATING THE SAME

12/591,737	11-30-2009	LIGHT EMITTING DEVICE DRIVING APPARATUS AND METHOD FOR DRIVING THE SAME
13/067,989	07-13-2011	WIRELESS APPARATUS HAVING WAKE-UP FUNCTION
14/147,837	01-06-2014	COIL COMPONENT
14/154,862	01-14-2014	TRANSFORMER
14/147,844	01-06-2014	COIL COMPONENT AND METHOD OF MANUFACTURING THE SAME
14/606,592	01-27-2015	PIEZOELECTRIC TRANSFORMER
13/721,365	12-20-2012	LIGHT EMITTING DIODE DRIVING APPARATUS
11/878,145	07-20-2007	FREQUENCY CONVERSION CIRCUIT
13/067,092	05-06-2011	COMPLEX TUNER MODULE
14/568,541	12-12-2014	POWER SUPPLYING APPARATUS
14/571,910	12-16-2014	CIRCUIT FOR DRIVING SYNCHRONOUS RECTIFIER AND POWER SUPPLY APPARATUS INCLUDING THE SAME

this Assignment includes said applications, any and all United States and foreign patents, utility models, and design registrations granted for any of said inventions or improvements, any reissues, supplemental examinations, and reexaminations, and the right to claim priority based on the filing date of said applications under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like purposes; and Assignor authorizes the Assignee to apply in all countries in Assignor's name or in its own name for patents, utility models, design registrations and like rights of exclusion and for inventors' certificates for said inventions and improvements; and Assignor agrees for itself and its heirs, legal representatives and assigns, without further compensation to perform such lawful acts and to sign such further applications, assignments, preliminary statements and other lawful documents as the Assignee may reasonably request to effectuate fully this Assignment.

IN TESTIMONY/WITNESS WHEREOF, undersigned Assignor intending to be legally bound, has hereto affixed its signature by its duly authorized representative.

This 23 day of December, 2015

W Kim
Signature of Representative

Wang-Yol Kim
Printed Name of Representative

Director
Title