506297846 10/12/2020

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6344596

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Chang-Po Hsiung	10/06/2020
Ching-Chung Yang	10/06/2020
Shan-Shi Huang	10/06/2020
Shin-Hung Li	10/06/2020
Nien-Chung Li	10/06/2020
Wen-Fang Lee	10/06/2020
Chiu-Te Lee	10/06/2020
Chih-Kai Hsu	10/06/2020
Chun-Ya Chiu	10/06/2020
Chin-Hung Chen	10/06/2020
Chia-Jung Hsu	10/06/2020
Ssu-I Fu	10/06/2020
Yu-Hsiang Lin	10/06/2020

RECEIVING PARTY DATA

Name:	UNITED MICROELECTRONICS CORP.	
Street Address:	No.3, Li-Hsin Road 2, Science-Based Industrial Park	
City:	Hsin-Chu City	
State/Country:	TAIWAN	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	17067775

CORRESPONDENCE DATA

Fax Number:

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.

Phone: 3027291562

Email: Patent.admin.uspto.cr@naipo.com

Correspondent Name: WINSTON HSU

Address Line 1: 5F., NO.389, FUHE RD., YONGHE DIST.,

Address Line 4: NEW TAIPEI CITY, TAIWAN

PATENT

506297846 REEL: 054301 FRAME: 0732

ATTORNEY DOCKET NUMBER:	NAUP3700USA
NAME OF SUBMITTER:	SIBYL YU
SIGNATURE:	/SIBYL YU/
DATE SIGNED:	10/12/2020
Total Attachments: 26	
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> PATENT REEL: 054301 FRAME: 0733

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I herel This declaration is directed to:	by declare that:		
☑ The attached application, or			
☐ United States application nur	mber	_filed on,	or
☐ PCT international application	number	filed on	
The above-identified application was	made or authorized to be made	by me.	
I believe that I am the original inventorapplication.	or or an original joint inventor of	a claimed invention in the	
I hereby acknowledge that any willful under18 U.S.C. 1001 by fine or impri	false statement made in this de sonment of not more than five (§	claration is punishable i) years, or both.	
In consideration of the payment by	UNITED MICROELECTRO CORP.	NICS having a postal addr	ess of
No.3, Li-Hsin Road 2, Science	-Based Industrial Park, Hs	in-Chu City 300, Taiwan,	R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good an	l of the sum of One Dollar (\$ 1. d valuable consideration.	00), the receipt of which is her	eby
I hereby sell, assign and transfer to A the entire right, title and interest in an invention as above-identified application or substitutes, or extensions thereof, an	ld to any and all improvements v tion and, in and to, all Letters Pa any continuations, continuation-	which are disclosed in the tent to be obtained for said in-part, divisions, renewals,	ΞE
I hereby covenant that no assignment entered into which would conflict with	it, sale, agreement or encumbra this assignment;	nce has been or will be made (or
I further covenant that ASSIGNEE wi and documents relating to said inven known and accessible to I and will te related thereto and will promptly exec	tion and said Letters Patent and stify as to the same in any interfe	legal equivalents as may be erence, litigation proceeding	s
representatives any and all papers, ir maintain, issue and enforce said app equivalents thereof which may be ne- IN WITNESS WHEREOF, I have here	lication, said invention and said cessary or desirable to carry out	Letters Patent and said the proposes thereof.	
Note: An application data sheet (PTC inventive entity, must accompany this	D/SB/14 or equivalent), including s form. Use this form for <u>each ad</u>	naming the entire ditional inventor.	

Page 1 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAI	ME OF INVENTOR(ASSI	GNOR)			
Inventor:	Chang-Po Hsiung		Date:	OCT C	6 2020
Signature:	Chang-Po	Heinng			

Page 2 of 26

Title of Invention:

NPO#NAU-P3700-USA:0

CUST#UMCD-2020-0195

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

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The above-identified application was	s made or authorized to	be made by me.		
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I hereby acknowledge that any willfu under18 U.S.C. 1001 by fine or impr	I false statement made isonment of not more t	e in this declaration han five (5) years,	ı is punishable or both.).
In consideration of the payment by	UNITED MICROEL CORP.	ECTRONICS	having a pos	stal address of
No.3, Li-Hsin Road 2, Science	e-Based Industrial	Park, Hsin-Chu	City 300, T	aiwan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good ar	o I of the sum of One E nd valuable considerati	ollar (\$ 1.00), the on.	receipt of whic	ch is hereby
I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica invention by the above application of substitutes, or extensions thereof, an	nd to any and all impro ition and, in and to, all r any continuations, co	vements which are Letters Patent to b ntinuation-in-part,	e disclosed in to be obtained for divisions, rene	the said wals,
I hereby covenant that no assignment entered into which would conflict with	nt, sale, agreement or h this assignment;	encumbrance has	been or will be	e made or
I further covenant that ASSIGNEE w and documents relating to said inver known and accessible to I and will te related thereto and will promptly exe	ntion and said Letters F estify as to the same in	Patent and legal eq any interference, l	juivalents as m litigation proce	nay be
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WITNESS WHEREOF, I have he	olication, said invention ecessary or desirable to	and said Letters For carry out the prop	Patent and said poses thereof.	d
Note: An application data sheet (PTC inventive entity, must accompany this				

Page 3 of 26

LEGAL NA	ME OF INVENTOR(ASSIGNOR)			
Inventor:	Ching-Chung Yang	Date:	OCT 0 6 2020	
Signature:	Ching - Chung Yang			_

Page 4 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

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I believe that I am the original invent application.	tor or an original joint inventor of	a claimed invention in the	
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In consideration of the payment by	UNITED MICROELECTRO	NICS having a postal a	address of
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I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, an	nd to any and all improvements ation and, in and to, all Letters Par r any continuations, continuation	which are disclosed in the atent to be obtained for said n-in-part, divisions, renewals	d s,
I hereby covenant that no assignmentered into which would conflict wit		ance has been or will be ma	ıde or
I further covenant that ASSIGNEE wand documents relating to said inverknown and accessible to I and will to related thereto and will promptly exercise.	ntion and said Letters Patent and estify as to the same in any inter	d legal equivalents as may l ference, litigation proceedin	be
representatives any and all papers, maintain, issue and enforce said appequivalents thereof which may be no IN WITNESS WHEREOF, I have he	plication, said invention and said ecessary or desirable to carry ou	Letters Patent and said at the proposes thereof.	
Note: An application data sheet (PT inventive entity, must accompany this	O/SB/14 or equivalent), including is form. Use this form for each a	g naming the entire dditional inventor.	

Page 5 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Shan-Shi Huang

Date:

OCT 0 6 2020

Signature:

甚 養 春 Hrang Shan-shi

Page 6 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:			
☑ The attached application, or				
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I hereby acknowledge that any willfu under18 U.S.C. 1001 by fine or impr	I false statement mad isonment of not more	le in this declaration than five (5) years,	ı is punishable or both.	
In consideration of the payment by	UNITED MICROE CORP.	LECTRONICS	having a postal a	ddress of
No.3, Li-Hsin Road 2, Science	-Based Industria	Park, Hsin-Chu	– ı City 300, Taiwa	an, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good an	o I of the sum of One nd valuable considera	Dollar (\$ 1.00), the tion.	receipt of which is	hereby
I hereby sell, assign and transfer to a the entire right, title and interest in an invention as above-identified applica invention by the above application of substitutes, or extensions thereof, ar	nd to any and all impr tion and, in and to, al r any continuations, c	ovements which are Letters Patent to bontinuation-in-part,	e disclosed in the be obtained for said divisions, renewals	l 5.
I hereby covenant that no assignmer entered into which would conflict with	nt, sale, agreement or n this assignment;	encumbrance has	been or will be mad	de or
I further covenant that ASSIGNEE w and documents relating to said inver known and accessible to I and will te related thereto and will promptly exe	ntion and said Letters estify as to the same i	Patent and legal ed any interference, l	quivalents as may b litigation proceeding	oe .
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be ne IN WITNESS WHEREOF, I have her	olication, said invention ecessary or desirable	n and said Letters I to carry out the pro	Patent and said poses thereof.	
Note: An application data sheet (PTC inventive entity, must accompany this	•			

Page 7 of 26

LEGAL NAME OF INVENTOR(ASSIGNOR)				
Inventor:	Shin-Hung Li	Date:	OCT 0 6 2020	
Signature:	Shin-Hung Li			

Page 8 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:		
☑ The attached application, or			
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The above-identified application was	s made or authorized to be made	by me.	
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I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica invention by the above application of substitutes, or extensions thereof, an	nd to any and all improvements watton and, in and to, all Letters Par rany continuations, continuation	which are disclosed in the atent to be obtained for said in-part, divisions, renewals	NEE
I hereby covenant that no assignment entered into which would conflict with	nt, sale, agreement or encumbra n this assignment;	nce has been or will be made	or
I further covenant that ASSIGNEE wand documents relating to said inverknown and accessible to I and will to related thereto and will promptly exe	ntion and said Letters Patent and estify as to the same in any interf	l legal equivalents as may be erence, litigation proceeding	cts
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Note: An application data sheet (PTG inventive entity, must accompany thi	D/SB/14 or equivalent), including s form. Use this form for <u>each a</u> c	naming the entire	

Page 9 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)					
Inventor:	Nien-Chung Li	Date:	OCT 0 6 2020		
Signature:	Nien-Chang Li				

Page 10 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:			
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(referred to as "ASSIGNEE"below) to acknowledged, andfor other good ar	o I of the sum of One Dollar (\$ 1.0 nd valuable consideration.	0), the receipt of whi	ich is hereby	
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I hereby covenant that no assignment entered into which would conflict with	nt, sale, agreement or encumbrand h this assignment;	ce has been or will b	oe made or	
I further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to I and will testify as to the same in any interference, litigation proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal				
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WITNESS WHEREOF, I have he	olication, said invention and said L ecessary or desirable to carry out t	etters Patent and sa the proposes thereof	f.	
Note: An application data sheet (PT)	O/SB/14 or equivalent), including r	naming the entire		

Page 11 of 26

inventive entity, must accompany this form. Use this form for each additional inventor.

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Wen-Fang Lee

Date:

OCT 0 6 2020

Signature:

Lity Wen-Frang Loe

Page 12 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	eby declare that:		
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I hereby sell, assign and transfer to the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, a	ind to any and all improver ation and, in and to, all Let or any continuations, contir	ments which are disc ters Patent to be obta nuation-in-part, divisio	losed in the ained for said ons, renewals,
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I further covenant that ASSIGNEE wand documents relating to said inveknown and accessible to I and will to related thereto and will promptly exercise.	ntion and said Letters Pate estify as to the same in an	ent and legal equivale y interference, litigati	ents as may be
representatives any and all papers, maintain, issue and enforce said ap equivalents thereof which may be no IN WITNESS WHEREOF, I have he	plication, said invention ar ecessary or desirable to ca	nd said Letters Patent arry out the proposes	t and said thereof.
Note: An application data sheet (PT inventive entity, must accompany th			

Page 13 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Chiu-Te Lee

Date:

OCT 0 6 2020

Signature

Page 14 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:		
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The above-identified application was	s made or authorized to be made	by me.	
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Page 15 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)					
Inventor:	Chih-Kai Hsu	Date:	OCT 0 6 2020		
Signature:	Chih-kai Hsu				

Page 16 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

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I hereby covenant that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment;				
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representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the proposes thereof. IN WITNESS WHEREOF, I have hereunto set hand and seal this on the date(s) indicated.				
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use this form for each additional inventor.				

Page 17 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)					
Inventor:	Chun-Ya Chiu	Date:	OCT 0 6 2020		
Signature:	Chun-Ta Chin				

Page 18 of

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

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representatives any and all papers, in maintain, issue and enforce said appequivalents thereof which may be nearly WITNESS WHEREOF, I have her	dication, said invention and said cessary or desirable to carry ou	Letters Pa	atent and said oses thereof.	
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Page 19 of 26

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)					
Inventor:	Chin-Hung Chen	Date:	OCT 0 6 2020		
Signature:	Unin-Hung Chen	-			
	4				

Page 20 of 26

Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

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No.3, Li-Hsin Road 2, Science	e-Based Industrial Park, Hsi	n-Chu City 300, Taiwan	, R.O.C
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good ar	o I of the sum of One Dollar (\$ 1.0 nd valuable consideration.	00), the receipt of which is he	ereby
I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, an	nd to any and all improvements w ition and, in and to, all Letters Pat r any continuations, continuation-i	hich are disclosed in the ent to be obtained for said in-part, divisions, renewals,	IEE
I hereby covenant that no assignme entered into which would conflict wit		ce has been or will be made	or
I further covenant that ASSIGNEE wand documents relating to said inverknown and accessible to I and will to related thereto and will promptly exercise.	ntion and said Letters Patent and estify as to the same in any interfe	legal equivalents as may be rence, litigation proceeding	cts
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WITNESS WHEREOF, I have he	olication, said invention and said Lecessary or desirable to carry out	Letters Patent and said the proposes thereof.	
Note: An application data sheet (PTo inventive entity, must accompany this			

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NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)					
Inventor:	Chia-Jung Hsu	Date:	OCT 0 6 2020		
Signature:	dira-Jung Hon.				

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Title of Invention:

SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:					
☑ The attached application, or						
☐ United States application number		_filed on,	, or			
☐ PCT international application number		filed on				
The above-identified application was	made or authorized to be made	by me.				
I believe that I am the original invent application.	or or an original joint inventor of a	a claimed invention in the				
I hereby acknowledge that any willful false statement made in this declaration is punishable under18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.						
In consideration of the payment by	UNITED MICROELECTROICORP.	NICS having a postal add	ress of			
No.3, Li-Hsin Road 2, Science-Based Industrial Park, Hsin-Chu City 300, Taiwan, R.O.C.						
(referred to as "ASSIGNEE"below) to I of the sum of One Dollar (\$ 1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration.						
I hereby sell, assign and transfer to ASSIGNEE and the successors and assignees of the ASSIGNEE the entire right, title and interest in and to any and all improvements which are disclosed in the invention as above-identified application and, in and to, all Letters Patent to be obtained for said invention by the above application or any continuations, continuation-in-part, divisions, renewals, substitutes, or extensions thereof, and as to Letters Patent any reissue or re-examination thereof.						
I hereby covenant that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment;						
I further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to I and will testify as to the same in any interference, litigation proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal						
representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the proposes thereof. IN WITNESS WHEREOF, I have hereunto set hand and seal this on the date(s) indicated.						
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use this form for each additional inventor.						

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NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor: Ssu-I Fu

Date:

OCT 0 6 2020

Signature:

Sau-I Fu

Page 24 of 26

Title of Invention: SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

As the below named inventor, I here This declaration is directed to:	by declare that:					
☑ The attached application, or						
☐ United States application number			filed on, or			
□ PCT international application number			d on			
The above-identified application was	made or authorized to	be made by me.	S			
I believe that I am the original inventapplication.	or or an original joint inv	entor of a claime	d invention in	the		
I hereby acknowledge that any willful false statement made in this declaration is punishable under18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.						
In consideration of the payment by	UNITED MICROEL CORP.	ECTRONICS	having a po	stal address of		
No.3, Li-Hsin Road 2, Science	-Based Industrial P	ark, Hsin-Chu	_ City 300, Т	aiwan, R.O.C.		
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good an	o I of the sum of One Do d valuable consideratio	ollar (\$ 1.00), the in.	receipt of whi	ch is hereby		
I hereby sell, assign and transfer to ASSIGNEE and the successors and assignees of the ASSIGNEE the entire right, title and interest in and to any and all improvements which are disclosed in the invention as above-identified application and, in and to, all Letters Patent to be obtained for said invention by the above application or any continuations, continuation-in-part, divisions, renewals, substitutes, or extensions thereof, and as to Letters Patent any reissue or re-examination thereof.						
l hereby covenant that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment;						
I further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to I and will testify as to the same in any interference, litigation proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal						
representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the proposes thereof. IN WITNESS WHEREOF, I have hereunto set hand and seal this on the date(s) indicated.						
Note: An application data sheet (PTC)/SR/14 or equivalent) i	ncludina namina	the entire			

Page 25 of 26

inventive entity, must accompany this form. Use this form for each additional inventor.

NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

LEGAL NAME OF INVENTOR(ASSIGNOR)						
Inventor:	Yu-Hsiang Lin	Date:	OCT 0 6 2020			
Signature:	Yn-Hstang Lin					

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NPO#NAU-P3700-USA:0 CUST#UMCD-2020-0195

RECORDED: 10/12/2020

F#NPO-P0002E-US1201 DSB0-109U028976

PATENT REEL: 054301 FRAME: 0759