

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7131452

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CUBIC PEROVSKITE LLC	09/15/2021

RECEIVING PARTY DATA

Name:	CUBICPV INC.
Street Address:	1807 ROSS AVENUE, SUITE 333
City:	DALLAS
State/Country:	TEXAS
Postal Code:	75201

PROPERTY NUMBERS Total: 3

Property Type	Number
Application Number:	17509271
Application Number:	17506194
Application Number:	17506977

CORRESPONDENCE DATA

Fax Number: (512)322-2501

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: 15123222601

Email: tracy.engberg@bakerbotts.com

Correspondent Name: BAKER BOTT S L.L.P.

Address Line 1: 98 SAN JACINTO BLVD., SUITE 1500

Address Line 4: AUSTIN, TEXAS 78701

ATTORNEY DOCKET NUMBER:	089891.0358.0359.0360
NAME OF SUBMITTER:	TRACY E. ENGBERG
SIGNATURE:	/Tracy E. Engberg/
DATE SIGNED:	01/20/2022

Total Attachments: 33

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ASSIGNMENT OF INTELLECTUAL PROPERTY

This ASSIGNMENT OF INTELLECTUAL PROPERTY (this “Assignment”), dated as of September 15, 2021, is entered into by and between by Cubic Perovskite LLC, a Delaware company (“Assignor”), and CubicPV Inc., a Delaware corporation (“Assignee”) (collectively referred to as the “Parties”).

WHEREAS, Assignee purchased all the outstanding membership interests of Hunt Perovskite Technologies, L.L.C. from Hunt Energy Enterprises, L.L.C. pursuant to that certain Membership Interest Purchase Agreement, dated as of June 24, 2021 (the “Acquisition”);

WHEREAS, following the Acquisition, Hunt Perovskite Technologies L.L.C. changed its name to Cubic Perovskite LLC by filing a Certificate of Amendment to Certificate of Formation of Hunt Perovskite Technologies, L.L.C. with the Secretary of State of the State of Delaware on June 25, 2021;

WHEREAS, Assignor is the owner of all rights, title and interest in and to the following: (1) all patents, patent applications and patent disclosures used in Assignor’s business, including U.S. and foreign patents and patent applications and any future related applications, reissues, re-examinations, extensions, continuations, continuations-in-part, and divisionals based thereon and foreign counterparts of the foregoing, including those set forth in Exhibit A; (2) all other intellectual property rights, including inventions, ideas, copyrights, trade secrets, and industrial and other protected designs used in Assignor’s business, whether or not registered, applied for, or unregistered (collectively, the “Assigned Intellectual Property”); and

WHEREAS, in connection with the Acquisition, Assignor desires to assign to Assignee all of Assignor’s right, title and interest in and to the Assigned Intellectual Property.

NOW THEREFORE, for good and valuable consideration exchanged between the Parties, the receipt and sufficiency of which are hereby acknowledged, Assignor and Assignee hereby agree as follows:

1. **Assignment**. Assignor hereby irrevocably conveys, transfers, and assigns to Assignee, and Assignee hereby accepts, all of Assignor’s right, title, and interest in and to the Assigned Intellectual Property, including:

(a) all rights of any kind whatsoever of Assignor accruing under any of the Assigned Intellectual Property provided by applicable law of any jurisdiction, by international treaties and conventions, and otherwise throughout the world;

(b) any and all royalties, fees, income, payments, and other proceeds now or hereafter due or payable with respect to any and all of the Assigned Intellectual Property; and

(c) any and all claims and causes of action, with respect to any of the Assigned Intellectual Property, whether accruing before, on, or after the date hereof, including all rights to and claims for damages, restitution, and injunctive and other legal

and equitable relief for past, present, and future infringement, dilution, misappropriation, violation, misuse, breach or default, with the right but no obligation to sue for such legal and equitable relief and to collect, or otherwise recover, any such damages.

Assignee hereby accepts the assignment and assumes and agrees to observe and perform all of the duties, obligations, terms, provisions and covenants, and to pay and discharge all of the liabilities of Assignor to be observed, performed, paid or discharged from and after the date of this Assignment.

2. Further Actions. Assignor agrees that it shall, without additional compensation, execute and deliver further instruments of conveyance, transfer and assignment as reasonably requested by Assignee, its successors, or assigns; reasonably cooperate and assist in providing information for making and completing regulatory and other filings; and take other similar actions as Assignee may reasonably require to effectively assign, convey and transfer the Assigned Intellectual Property and all registrations and rights therein to Assignee.

3. Counterparts. This Assignment may be executed in two or more counterparts and by exchange of original, facsimile or portable document format (.pdf) signature pages, all of which shall be considered one and the same agreement and shall become effective when counterparts of such signature pages have been signed by each of the parties hereto and delivered to the other parties hereto, it being understood that each party need not sign the same counterpart signature page.

4. Successors and Assigns. This Assignment shall be binding upon and shall inure to the benefit of the Parties and their respective successors and assigns.

5. Governing Law; Venue. This Assignment and any claim, controversy or dispute arising under or related to this Assignment shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to any conflicts of laws principles that would result in the application of any law other than the law of the State of Delaware. The Parties hereby irrevocably submit to the exclusive jurisdiction of (i) the state courts of the State of Delaware or (ii) the United States District Court for the District of Delaware, for the purposes of any claim, controversy or dispute arising under or related to this Assignment, so long as such court shall have subject matter jurisdiction over such proceeding. The Parties hereby irrevocably waive, to the fullest extent permitted by law, any objection that they may now or hereafter have to the laying of venue of any dispute, controversy or claim arising out of or relating to this Assignment brought in such court or any defense of inconvenient forum for the maintenance of such dispute, controversy or claim. Each Party agrees that a judgment in any such dispute may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by Law. This consent to jurisdiction is being given solely for purposes of this Assignment and is not intended to confer, and shall not confer, consent to jurisdiction with respect to any other dispute in which a Party to this Assignment may become involved.

IN WITNESS WHEREOF, the undersigned have duly executed and delivered this Assignment as of the date first above written.

ASSIGNOR:

CUBIC PEROVSKITE LLC

By: 

Name: Michael T. Lewis

Title: CTO, SVP

AGREED TO AND ACCEPTED:

ASSIGNEE:

CUBICPV INC

By: 

Name: Michael T. Lewis

Title: CTO, SVP

EXHIBIT A

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0211	Australia	PCT	2014384511	24-Nov-2014	2014264911	16-Mar-2017	Granted	Perovskite and other Solar Cell Materials
081546.0233	Australia	Div	2017281243	24-Nov-2014			Abandoned	Perovskite and other Solar Cell Materials
081546.0297	Australia	Div	2018202758	24-Nov-2014			Abandoned	Perovskite and other Solar Cell Materials
081546.0370	Australia	Div	2019288163	24-Nov-2014			Pending	Perovskite and other Solar Cell Materials
081546.0228	Australia	PCT	2015296288	30-Jun-2015	2015296288	27-Jul-2017	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0247	Australia	Div	2017204662	30-Jul-2015	2017204662	10-Oct-2019	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0343	Australia	Div	2018236843	30-Jul-2015	2019236843	15-Jul-2021	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0448	Australia	Div	2021204425	30-Jul-2015			Pending	(Sca0151-AUD) Method of Formulating Perovskite Solar Cell Materials (CNV + AU3343)
081546.0254	Australia	PCT	2016261906	12-May-2016			Abandoned	(Sca0157-AU) Titanium Interfacial Layers in Perovskite Material Devices

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Type
081546.0316	Australia	Div	201822426	12-May-2016			Abandoned	Titanate Interfacial Layers in Perovskite Material Devices
081546.0407	Australia	Div	2021230670	12-May-2016			Pending	(Solar0157-AUD2) Titanate Interfacial Layers in Perovskite Material Devices (Div + AU316)
081546.0237	Australia	PCT	2015349902	19-Nov-2015	2015349902	08-Mar-2018	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0280	Australia	Div	2018261184	19-Nov-2016	2018201184	30-May-2019	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0331	Australia	Div	20162013283	19-Nov-2015	2016203293	17-Dec-2020	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0337	Australia	Div	2020267316	18-Nov-2015			Pending	(Solar0160-AUD3) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (Div + AU331)
081546.0238	Australia	PCT	20162234314	06-Jul-2016	2016294314	07-Mar-2019	Granted	Perovskite Material Layer Processing
081546.0318	Australia	Div	2019201229	06-Jul-2016	2019201229	11-Mar-2021	Granted	Perovskite Material Layer Processing
081546.0334	Australia	PCT	2016325716	26-Sep-2016	2016325716	26-Sep-2016	Granted	(Solar0173-AU) System and Method for Testing Photosensitive Device Degradation

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0305	Australia	Div	20182034243	26-Sep-2016	20182042449	26-Sep-2016	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0311	Australia	Div	20182034241	26-Sep-2016	20182034241	13-Feb-2020	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0344	Australia	PCT	20182035189	12-Apr-2018			Pending	Hybrid Perovskite Material Processing
081546.0410	Australia	PCT	AU2019384692	03-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0438	Australia	PCT	AU2019384104	14-Nov-2019			Pending	Nickel Oxide Sol-Gel Ink
081546.0425	Australia	PCT	AU2019382351	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0231	Belgium BE	EPC	15828193.1	30-Jul-2015	31953372	04-Sep-2019	Inactive	Method of Formulating Perovskite Solar Cell Materials
081546.0204	Brazil	PCT	BR 112016011873.1	24-Nov-2014			Published	Perovskite and other Solar Cell Materials
081546.0224	Brazil	PCT	1120170021072	30-Jul-2015	BR 112017002107-2	27-Oct-2020	Granted	Method of Formulating Perovskite Solar Cell Materials

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0255	Brazil	PCT	BR 112017024352-0	12-May-2016			Published	Titanate Interfacial Layers in Perovskite Material Devices
081546.0235	Brazil	PCT	112017010350-0	19-Nov-2015			Published	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0382	Brazil	DIV	122020016353-3	19-Nov-2015			Pending	(Solar160-BRD1) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (Div1 + BR0235)
081546.0277	Brazil	PCT	112016000181-3	06-Jul-2016			Pending	Perovskite Material Layer Processing
081546.0337	Brazil	DIV	122019013870-2	06-Jul-2016			Pending	Perovskite Material Layer Processing
081546.0291	Brazil	PCT	112018035784-3	28-Sep-2016			Published	System and Method for Testing Photosensitive Device Degradation
081546.0345	Brazil	PCT	112019021770-3	12-Apr-2018			Published	Hybrid Perovskite Material Processing
081546.0202	Canada	PCT	2931692	24-Nov-2014			Published	Perovskites and other Solar Cell Materials
081546.0222	Canada	PCT	2956633	30-Jul-2015	2956633	11-Feb-2020	Granted	Method of Formulating Perovskite Solar Cell Materials

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Client Master Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0304	Canada	Div	3010113	30-Jun-2015	3010113	22-Sep-2020	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0384	Canada	Div	3080853	30-Jun-2015			Published	(Solar151-CA02) Method of Formulating Perovskite Solar Cell Materials (Div2 + CA304)
081546.0256	Canada	PCT	2985784	12-May-2018	2985784	04-Sep-2018	Granted	Titanate Interfacial Layers in Perovskite Material Devices
081546.0243	Canada	PCT	2868367	19-Nov-2015			Published	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0276	Canada	PCT	2991887	06-Jun-2016	2991887	28-Jan-2020	Granted	Perovskite Material Layer Processing
081546.0320	Canada	Div	3038358	06-Jun-2018	3038358	15-Dec-2020	Granted	Perovskite Material Layer Processing
081546.0285	Canada	PCT	2989839	26-Sep-2016	299939	10-Sep-2019	Granted	System and Method for Testing photosensitive Device Degradation
081546.0312	Canada	Div	3022433	26-Sep-2018	3022433	03-Sep-2019	Granted	System and Method for Testing photosensitive Device Degradation
081546.0346	Canada	PCT	2069122	12-Apr-2018			Published	Hybrid Perovskite Material Processing

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Status	Title
081546.0412	Canada	PCT	3120258	08-Nov-2019		Published	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0430	Canada	PCT	3120657	14-Nov-2019		Published	Nickel Oxide Sol-Gel Ink
081546.0418	Canada	PCT	3120251	08-Nov-2019		Published	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0203	China (People's Republic)	PCT	201480074039.6	24-Nov-2014	ZL201480074039.6	12-Sep-2017	Granted
081546.0249	China (People's Republic)	Div	201710705222.7	24-Nov-2014			Abandoned
081546.0223	China (People's Republic)	PCT	2015800516886.2	30-Jul-2015	21_2015800516886.2	25-Dec-2018	Granted
081546.0314	China (People's Republic)	Div	201811463344.6	30-Jul-2015			Abandoned
081546.0257	China (People's Republic)	PCT	2018800330859.X	12-May-2016			Abandoned
081546.0441	China (People's Republic)	Div	202110537312.6	12-May-2016			Published

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0239	China (People's Republic)	PCT	201580073486.4	19-Nov-2015			Abandoned	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0446	China (People's Republic)	DIV	202110742042.2	19-Nov-2015			Pending	(Solar0160-CM01) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0274	China (People's Republic)	PCT	2016800340678.0	06-Jul-2016			Published	Perovskite Material Layer Processing
081546.0287	China (People's Republic)	PCT	201680065163.3	26-Sep-2016	ZL201680030865103.3	05-Nov-2019	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0355	China (People's Republic)	DIV	2019103508624.7	26-Sep-2016			Published	System and Method for Testing Photosensitive Device Degradation
081546.0366	China (People's Republic)	PCT	2018801033074.1	11-Apr-2018			Published	Photovoltaic Device Encapsulation
081546.0347	China (People's Republic)	PCT	201880033068.6	12-Apr-2018			Published	Hybrid Perovskite Material Processing
081546.0411	China (People's Republic)	PCT	2019800387633.1	06-Nov-2019			Published	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0431	China (People's Republic)	PCT	2019800387256.1	14-Nov-2019			Published	Nickel Oxide Sol-Gel Ink

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Status	Title	
081546.0419	China (People's Republic)	PCT	201980087628.0	08-Nov-2019		Published	Enhanced Perovskite Materials for Photovoltaic Devices	
081546.0205	European Patent Convention	PCT	148653222.5	24-Nov-2014	3075012	07-Oct-2020	Granted	Perovskite and other Solar Cell Materials
081546.0380	European Patent Convention	Div	201930382.3	24-Nov-2014			Published	(Solar0131 – EP01) Perovskite and other Solar Cell Materials (B1V1 + EP205)
081546.0231	European Patent Convention	PCT	158283183.1	30-Jul-2015	3195372	04-Sep-2019	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0338	European Patent Convention	Div	191485355.5	30-Jul-2015			Published	Method of Formulating Perovskite Solar Cell Materials
081546.0268	European Patent Convention	PCT	16733494.2	12-May-2016			Published	Thin-film Interfacial Layers in Perovskite Material Devices
081546.0241	European Patent Convention	PCT	16860737.4	19-Nov-2015	3221636	27-May-2020	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0375	European Patent Convention	Div	201703937.5	19-Nov-2015			Published	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0275	European Patent Convention	PCT	16824304.3	08-Jun-2016	3320571	02-Sep-2020	Opposition	Perovskite Material Layer Processing

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0378	European Patent Convention	DIV	20186285.1	06-Jul-2016			Published	(SOLARO163) (EP-D1) Perovskite Material Layer Processing (EP DIV1 + EP0275)
081546.0290	European Patent Convention	PCT	16849881.4	28-Sep-2016	3353830	28-Jun-2021	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0447	European Patent Convention	DIV	211603168.3	26-Sep-2016			Pending	(Solaro173-EPD1) System and Method for Testing Photosensitive Device Degradation (DIV + EP0290)
081546.0357	European Patent Convention	PCT	18784901.3	11-Apr-2018			Published	Photovoltaic Device Encapsulation
081546.0348	European Patent Convention	PCT	18788285.9	12-Apr-2018			Published	Hybrid Perovskite Material Processing
081546.0416	European Patent Convention	PCT	19886670.9	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0434	European Patent Convention	PCT	19838063.5	14-Nov-2019			Pending	Nickel Oxide Sol-Gel Ink
081546.0420	European Patent Convention	PCT	19886689.5	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0231	France FR	EPC	15828193.1	30-Jun-2015	3195372	04-Sep-2019	Inactive	Method of Formulating Perovskite Solar Cell Materials

Client Matter Number	Country	Case type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0231 DE	Germany	EPC	15828193.1	30-Jun-2015	803015037412.6	04-Sep-2018	Inactive	Method of Formulating Perovskite Solar Cell Materials
081546.0208	India	PCT	201617018073	24-Nov-2014	3653401	06-Jan-2021	Granted	Perovskite and other Solar Cell Materials
081546.0381	India	DIV	202018033557	24-Nov-2014			Pending	(Solar0131-IND1) Perovskite and other Solar Cell Materials (Div1 + IN0258) (081546.0381)
081546.0226	India	PCT	201717004379	30-Jun-2015			Pending	Method of Formulating Perovskite Solar Cell Materials
081546.0259	India	PCT	201717041039	12-May-2016			Pending	Interfacial Layers in Perovskite Material Devices
081546.0240	India	PCT	201717021070	18-Nov-2015	3611746	18-Mar-2021	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0389	India	DIV	202018047436	18-Nov-2015			Pending	(Solar0160-IND1) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (DIV + IN0240)
081546.0270	India	PCT	2018170108281	06-Jul-2016	3639388	24-Feb-2021	Granted	Perovskite Material Layer Processing
081546.0383	India	DIV	202018035844	06-Jul-2016			Pending	(Solar0163-IND1) Perovskite Material Layer Processing (DIV + IN0270)

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Status	Title
081546.0293	India	PCT	201817011647	26-Sep-2016		Pending	System and Method for Testing Photosensitive Device Degradation
081546.0452	India	DV				Unified	(Solar0173-IRD1) System and Method for Testing Photosensitive Device Degradation (DV + IRD23)
081546.0351	India	PCT	201917040904	12-Apr-2018		Pending	Hybrid Perovskite Material Processing
081546.0414	India	PCT	202117022276	08-Nov-2019		Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0432	India	PCT	202117022437	14-Nov-2018		Pending	Nickel Oxide Sol-Gel Ink
081546.0436	India	PCT	202117022274	08-Nov-2019		Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0231 IE	Ireland	EPC	15828193.1	30-Jul-2015	3195372	04-Sep-2019	Inactive
081546.0231 IT	Italy	EPC	16828193.1	30-Jul-2015	5020190000361317	04-Sep-2019	Inactive
081546.0212	Japan	PCT	2016-535063	24-Nov-2014		Abandoned	Perovskite and other Solar Cell Materials

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Status	Title
081546.0229	Japan	PCT	2017-505481	30-Jul-2015	6301548	09-Mar-2018	Granted
081546.0281	Japan	DIV	2018-034518	30-Jul-2015		Abandoned	(XTRA) JP - Method of Formulating Perovskite Solar Cell Materials
081546.0280	Japan	PCT	2017-506435	12-May-2016		Abandoned	(XTRA) JP - Method of Formulating Perovskite Cell Materials (Div of 081546.0229)
081546.0327	Japan	DIV	2019-082745	12-May-2016		Published	Titanate Interfacial Layers in Perovskite Material Devices
081546.0444	Japan	DIV	2021-117336	12-May-2016		Pending	(S000157-JP2) Titanate Interfacial Layers in Perovskite Material Devices
081546.0244	Japan	PCT	2017-527327	19-Nov-2015		Abandoned	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0336	Japan	DIV	2019-23320	19-Nov-2015		Published	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0273	Japan	PCT	2018-500688	08-Jun-2016	6374134	27-Jun-2018	Granted
081546.0308	Japan	DIV	2018-134567	08-Jun-2016	85133862	19-Apr-2019	Granted
							Perovskite Material Layer Processing

Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0292	Japan	PCT	2018513498	26-Sep-2016	6738651	12-Aug-2020	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0313	Japan	DIV	2018201151	26-Sep-2016	6905303	29-Jun-2021	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0386	Japan	DIV	20201157804	26-Sep-2016			Published	(Solar)173-JPD2) System and Method for Testing Photosensitive Device Degradation (UV + JPD0313) (081546.0386)
081546.0368	Japan	PCT	2019655794	11-Apr-2018			Published	Photovoltaic Device Encapsulation
081546.0349	Japan	PCT	2019555458	12-Apr-2018			Published	Hybrid Perovskite Material Processing
081546.0415	Japan	PCT	2021-528880	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0433	Japan	PCT	2021-533873	14-Nov-2019			Pending	Nickel Oxide Sol-Gel Ink
081546.0427	Japan	PCT	2021-528882	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0208	Korea, Republic of	PCT	10-2016-7014084	24-Nov-2014	10-1740208	19-May-2017	Granted	Perovskites and other Solar Cell Materials

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Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Patent Date	Status	Title
081546.0246	Korea, Republic of	DIV	10-2017-7013463	24-Nov-2014	10-1808013	05-Dec-2017	Granted	Perovskite and other Solar Cell Materials
081546.0267	Korea, Republic of	DIV	1020177034883	24-Nov-2014	10-2247514	27-Apr-2021	Granted	Perovskite and other Solar Cell Materials
081546.0440	Korea, Republic of	DIV	1020217012698	24-Nov-2014			Allowed	(Solar0131-KR03) Perovskite and other Solar Cell Materials (DIV+KR0287)
081546.0226	Korea, Republic of	PCT	10-2017-7005765	30-Jul-2015	10-1840351	14-Mar-2018	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0283	Korea, Republic of	DIV	1020187007213	30-Jul-2015			Abandoned	Method of Formulating Perovskite Solar Cell Materials
081546.0321	Korea, Republic of	DIV	1020197003695	30-Jul-2015	10-2262967	03-Jun-2021	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0443	Korea, Republic of	DIV	10-2021-7017953	30-Jul-2015			Published	Method of Formulating Perovskite Solar Cell Materials
081546.0261	Korea, Republic of	PCT	1020177034554	12-May-2016	102038797	02-Aug-2019	Granted	Thinnate Interfacial Layers in Perovskite Material Devices
081546.0236	Korea, Republic of	PCT	1020177017076	12-Nov-2015	101877975	06-Jul-2018	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices

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081546.0309	Korea, Republic of	Div	1020187019493	19-Nov-2015	101972919	22-Apr-2019	Granted Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0326	Korea, Republic of	Div	1020197011530	19-Nov-2015	102051930	28-Nov-2019	Granted Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0371	Korea, Republic of	Div	1020197035242	18-Nov-2015	10-2179880	11-Nov-2020	Granted Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0391	Korea, Republic of	Div	10-2020-7032564	19-Nov-2015		Allowed	(Solar0160-KP04) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (D1V + KRC0371) (081546.0391)
081546.0450	Korea, Republic of	Div	10-2021-7025797	19-Nov-2015		Pending	(Solar0160-KF03) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (D1V + KRC0381) (081546.0450)
081546.0272	Korea, Republic of	PCT	1020187000814	06-Jun-2016	101963702	25-Mar-2019	Granted Perovskite Material Layer Processing
081546.0319	Korea, Republic of	Div	1020197038516	06-Jul-2016		Published	Perovskite Material Layer Processing
081546.0289	Korea, Republic of	PCT	1020187011241	28-Sep-2016		Abandoned	System and Method for Testing Photosensitive Device Degradation
081546.0342	Korea, Republic of	Div	1020197022237	26-Sep-2016		Published	System and Method for Testing Photosensitive Device Degradation

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081546.0358	Korea, Republic of	PCT	1020197033305	11-Apr-2018		Published	Photovoltaic Device Encapsulation	
081546.0350	Korea, Republic of	PCT	1020197033833	12-Apr-2018		Published	Hybrid Perovskite Material Processing	
081546.0416	Korea, Republic of	PCT	16-2021-7018579	16-Jun-2021		Published	Enhanced Perovskite Materials for Photovoltaic Devices	
081546.0435	Korea, Republic of	PCT	10-2021-7018581	16-Jun-2021		Published	Nickel Oxide Sol-Gel Ink	
081546.0428	Korea, Republic of	PCT	10-2021-7018576	16-Jun-2021		Published	Enhanced Perovskite Materials for Photovoltaic Devices	
081546.0263	Malaysia	PCT	PI 2017704292	12-May-2016		Allowed	Titanate Interfacial Layers in Perovskite Material Devices	
081546.0238	Malaysia	PCT	PI 2017701800	19-Nov-2015	MY-181178-A	21-Dec-2020	Granted	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0338	Malaysia	DIV	PI2020006120	19-Nov-2015		Pending	(Solar) Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices (D1V + MY0238)	
081546.0271	Malaysia	PCT	PI 2017705063	06-Jul-2016		Allowed	Perovskite Material Layer Processing	

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081546.0408	Malaysia	DIV	PI202100586	06-Jul-2016			Pending	Perovskite Material Layer Processing
081546.0286	Malaysia	PCT	PI2018701149	28-Sep-2018			Allowed	System and Method for Testing Photosensitive Device Degradation
081546.0306	Malaysia	DIV	PI2018703196	26-Sep-2018			Pending	System and Method for Testing Photosensitive Device Degradation
081546.0408	Malaysia	DIV					Unfiled	(Solar0173-MY-B2) System and Method for Testing Photosensitive Device Degradation (D1V + MY0306)
081546.0353	Malaysia	PCT	PI201900158601	12-Apr-2018			Pending	Hybrid Perovskite Material Processing
081546.0417	Malaysia	PCT	PI2021002767	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0436	Malaysia	PCT	PI2021002799	14-Nov-2018			Pending	Nickel Oxide Sol-Gel Ink
081546.0422	Malaysia	PCT	PI2021002787	08-Nov-2018			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0210	Mexico	PCT	MX/a/2018/06714	24-Nov-2014	364267	17-Apr-2019	Granted	Perovskite and other Solar Cell Materials

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081546.0324	Mexico	DIV	MXa2013004512	24-Nov-2014			Pending	Perovskite and other Solar Cell Materials
081546.0227	Mexico	PCT	MX/a/2017/001390	30-Jul-2015	369793	21-Nov-2018	Granted	Method of Formulating Perovskite Solar Cell Materials
081546.0365	Mexico	DIV	MXa2016013858	30-Jul-2015			Pending	Method of Formulating Perovskite Solar Cell Materials
081546.0262	Mexico	PCT	MX/a/2017/014463	12-May-2016	367777	05-Sep-2019	Granted	Titanate Interfacial Layers in Photosensitive Material Devices
081546.0245	Mexico	PCT	MX/a/2017/016646	19-Nov-2015	378357	15-Dec-2020	Granted	Si and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0400	Mexico	DIV	MX/a/2020/013576	19-Nov-2015			Pending	(Solar)160-MXD1) Si- and Tri-layer Interfacial Layers in Perovskite Material Devices (D1V + MX0245)
081546.0278	Mexico	PCT	MX/a/2018/000314	06-Jun-2016			Pending	Perovskite Material Layer Processing
081546.0288	Mexico	PCT	MX/a/2018/003586	26-Sep-2016			Pending	System and Method for Testing Photosensitive Device Degradation
081546.0451	Mexico	DIV					Unfilled	(Solar)173-MXD1) System and Method for Testing Photosensitive Device Degradation (D1V1 + MX0286)

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081546.0352	Mexico	PCT	MX2019012317	12-Apr-2018			Pending	Hybrid Perovskite Material Processing
081546.0423	Mexico	PCT	MX/ai/2021/003894	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0439	Mexico	PCT	MX/ai/2021/003895	14-Nov-2019			Pending	Nickel Oxide Sol-Gel Ink
081546.0421	Mexico	PCT	MX/ai/2021/003893	08-Nov-2019			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0231	Netherlands NL	EPC	15828193.1	30-Jun-2015	3195372	04-Sep-2019	Inactive	Method of Formulating Perovskite Solar Cell Materials
081546.0146	Patent Cooperation Treaty	ORD	US14/25810	13-Mar-2014			Abandoned	Perovskite and Other Solar Cell Materials
081546.0144	Patent Cooperation Treaty	ORD	US14/67024	24-Nov-2014			Completed	Perovskite and other Solar Cell Materials
081546.0164	Patent Cooperation Treaty	ORD	US15/42864	30-Jul-2015			Completed	Method of Formulating Perovskite Solar Cell Materials
081546.0201	Patent Cooperation Treaty	ORD	US16/31988	12-May-2016			Completed	Titanate Interfacial Layers in Perovskite Material Devices

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081546.0175	Patent Cooperation Treaty	ORD	US15/61467	19-Nov-2015			Completed	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0216	Patent Cooperation Treaty	ORD	US16/41090	08-Mar-2016			Completed	Perovskite Material Layer Processing
081546.0219	Patent Cooperation Treaty	ORD	US16/53808	26-Sep-2016			Completed	System and Method for Testing Photosensitive Device Degradation
081546.0296	Patent Cooperation Treaty	ORD	US18/27373	11-Apr-2018			Completed	Photovoltaic Device Encapsulation
081546.0296	Patent Cooperation Treaty	ORD	US18/27326	12-Apr-2018			Completed	Hybrid Perovskite Material Processing
081546.0394	Patent Cooperation Treaty	ORD	PCT/US2020/031820	23-Nov-2020			Published	(Sciand265-WO) CROSS LINKED SURFACE COATING AND INTERFACIAL LAYER FOR A PEROVSKITE MATERIAL PHOTOVOLTAIC DEVICE (PCT+US265)
081546.0382	Patent Cooperation Treaty	ORD	PCT/US2019/030405	08-Nov-2019			Completed	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0364	Patent Cooperation Treaty	ORD	US19/61462	14-Nov-2019			Completed	Nickel Oxide Sol-Gel Ink

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081546.0376	Patent Cooperation Treaty	ORD	PCT/US2020/028827	17-Apr-2020			Published	METHOD FOR SOLVENT-FREE PEROVSKITE DEPOSITION
081546.0393	Patent Cooperation Treaty	ORD	PCT/US2020/061512	28-Nov-2020			Published	(Solar0323-WO) 2D Perovskite Tandem Photovoltaic Devices (PCT + US0323)
081546.0390	Patent Cooperation Treaty	ORD	PCT/US2020/058874	04-Nov-2020			Published	(Solar0332-WO) Perovskite Material Photovoltaic Device and Method for Assembly (PCT + US032)
081546.0395	Patent Cooperation Treaty	ORD	PCT/US2020/061824	23-Nov-2020			Published	(Solar0335-WO) NON-FULLERENE ACCEPTORS (NFAS) AS INTERFACIAL LAYERS IN PEROVSKITE SEMICONDUCTOR DEVICES (PCT + US0335)
081546.0363	Patent Cooperation Treaty	ORD	PCT/US2019/060410	08-Nov-2019			Completed	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0396	Patent Cooperation Treaty	ORD	PCT/US2020/062483	27-Nov-2020			Published	(Solar0361-WO) Metal Oxide Nanoparticle Electron Transport Layers in Perovskite Semiconductor Devices (PCT + US0361) (081546.0396)
081546.0397	Patent Cooperation Treaty	ORD	PCT/US2020/062512	27-Nov-2020			Published	(Solar0372-WO) Reusable Interface for Solar Cell Test and Characterization (PCT + US0372)
081546.0231 PL	Poland	EPC	15828193.1	30-Jul-2015	3195372	04-Sep-2018	Inactive	Method of Formulating Perovskite Solar Cell Materials
081546.0231 ES	Spain	EPC	15828193.1	30-Jul-2015	3195372	04-Sep-2019	Inactive	Method of Formulating Perovskite Solar Cell Materials

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081546.0231 CH	Switzerland	EPC	15828193.1	30-Jul-2015	3195372	04-Sep-2019	Inactive
081546.0231 GB	United Kingdom	EPC	15828193.1	30-Jul-2015	3195372	04-Sep-2019	Inactive
081546.0117	United States of America	ORD	131838349	15-Mar-2013	8889909	18-Nov-2014	Granted
081546.0122	United States of America	CON	131869325	24-Apr-2013	9466798	11-Oct-2016	Granted
081546.0123	United States of America	CON	131869426	24-Apr-2013	9000294	07-Apr-2015	Granted
081546.0124	United States of America	PRO	611786331	14-Mar-2013			Abandoned
081546.0125	United States of America	CIP	1312110425	16-Aug-2011			Abandoned
081546.0128	United States of America	CIP					Abandoned
081546.0127	United States of America	PRO	611303168	26-Nov-2013		Closed	Improved Solar Cell Materials

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081546.0128	United States of America	CVP	14/281136	19-May-2014		Abandoned	Solar Cell Materials
081546.0131 1	United States of America	CVP	14/219013	13-Mar-2014	9136408	16-Sep-2015	Granted
081546.0145	United States of America	CON	14/443053	31-Jul-2014	9331292	03-May-2016	Granted
081546.0176	United States of America	CON	15/136982	22-Apr-2016	9530972	27-Dec-2016	Granted
081546.0186	United States of America	CON	15/142520	29-Apr-2016			Abandoned
081546.0199	United States of America	CON	15/142710	29-Apr-2016	10183087	28-Jan-2019	Granted
081546.0190	United States of America	CON	15/463953	16-Mar-2017			Abandoned
081546.0250	United States of America	CON	15/36394	30-Apr-2018	10333082	26-Jun-2019	Granted
081546.0251	United States of America	CON	15/386698	30-Apr-2018	10608190	31-Mar-2020	Granted

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Client Matter Number	Country	Case Type	Application No.	Filing Date	Patent No.	Status	Title
081546.0253	United States of America	CON	15/9868156	01-May-2018	11024214	01-Jun-2021	Granted Multi-Junction Perovskite Material Devices
081546.0298	United States of America	CON	16/117230	30-Aug-2018	10818712	08-Feb-2021	Granted Perovskite and Other Solar Cell Materials
081546.0442	United States of America	CON	17/325597	20-May-2021		Pending	Multi-Junction Perovskite Material Devices
081546.0131	United States of America	PRO	61/913665	03-Dec-2013		Closed	Perovskite and other Solar Cell Materials
081546.0161	United States of America	PRO	62/032137	01-Aug-2014		Closed	Method of Formulating Perovskite Solar Cell Materials
081546.0151	United States of America	CVP	14/711330	13-May-2015	9305715	06-Apr-2016	Granted Method of Formulating Perovskite Solar Cell Materials
081546.0185	United States of America	CON	15/063187	11-Mar-2016	9901457	05-Jun-2018	Granted Method of Formulating Perovskite Solar Cell Materials
081546.0302	United States of America	CON	15/833344	04-Jun-2018	10741779	11-Aug-2020	Granted Method of Formulating Perovskite Solar Cell Materials
081546.0373	United States of America	CON	16/9333807	27-Jul-2020		Published	Method of Formulating Perovskite Solar Cell Materials

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081546.0157	United States of America	CIP	14/7711430	13-May-2015	9530512	13-Dec-2016	Granted	TITANATE INTERFACIAL LAYERS IN PEROVSKITE MATERIAL DEVICES
081546.0158	United States of America	CON	14/8661150	25-Sep-2015	9884986	06-Feb-2018	Granted	Bi- and Tri- Layer Interfacial Layers in Perovskite Material Devices
081546.0159	United States of America	CON	14/9849080	23-Nov-2015	9817431	11-Apr-2017	Granted	Bi- and Tri- Layer Interfacial Layers in Perovskite Material Devices
081546.0220	United States of America	CON	15/1443582	27-Feb-2017	10186998	29-Jan-2019	Granted	Doped Nickel Oxide Interfacial Layer
081546.0221	United States of America	CON	15/7713104	22-Sep-2017	10318196	11-Jun-2019	Granted	Bi- and Tri- Layer Interfacial Layers in Perovskite Material Devices
081546.0334	United States of America	CON	16/1436536	10-Jun-2019			Allowed	Mixed Cadmium Perovskite Material Devices
081546.0160 1	United States of America	CIP	16/7711391	13-May-2015	9416279	16-Aug-2016	Granted	Bi- and Tri- layer Interfacial Layers in Perovskite Material Devices
081546.0180	United States of America	PRO	62/0383063	21-Nov-2014			Closed	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0163	United States of America	CIP	14/7936468	10-Jun-2015	9425396	23-Aug-2016	Granted	Perovskite Material Layer Processing

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081546.0214	United States of America	DIV	15/194785	28-Jun-2016	9941480	10-Apr-2018	Granted	Perovskite Material Layer Processing
081546.0173	United States of America	PRO	82/232088	24-Sep-2015		Closed		System and Method for Testing Photosensitive Device Degradation
081546.0173.1	United States of America	C/P	15/276378	26-Sep-2016	9831829	29-Nov-2017	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0301	United States of America	CON	15/988530	25-May-2018	10781641	26-Oct-2020	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0388	United States of America	CON	17/063157	08-Oct-2020			Published	System and Method for Testing Photosensitive Device Degradation
081546.0248	United States of America	DIV	15/822349	27-Nov-2017	9985583	29-May-2018	Granted	System and Method for Testing Photosensitive Device Degradation
081546.0215	United States of America	ORD					Unlisted	Perovskite Material Solar Cell and Method of Manufacture
081546.0217	United States of America	ORD	15/488161	14-Apr-2017			Published	Photovoltaic Device Encapsulation
081546.0234	United States of America	ORD	15/489431	17-Apr-2017	9880458	30-Jan-2018	Granted	Hybrid Perovskite Material Processing

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081546.0374	United States of America	C/N	1618538645	27-Apr-2020		Published	Hybrid Perovskite Material Processing	
081546.0252	United States of America	Div	151882307	29-Jan-2018	10642147	05-May-2020	Granted	Hybrid Perovskite Material Processing
081546.0283	United States of America	PRO	621941320	27-Nov-2019		Closed	Cross Linked Surface Coating and Interfacial Layer for a Perovskite Material Photovoltaic Device	
081546.0225.1	United States of America	C/P	171102241	23-Nov-2020		Allowed	Cross Linked Surface Coating and Interfacial Layer for a Perovskite Material Photovoltaic Device	
081546.0266	United States of America	PRO	621710313	21-Nov-2018		Closed	Enhanced Perovskite Materials for Photovoltaic Devices	
081546.0266.1	United States of America	C/P	161635813	28-Oct-2018		Published	Enhanced Perovskite Materials for Photovoltaic Devices	
081546.0303	United States of America	PRO	6217710389	21-Nov-2018		Closed	Nickel Oxide Sol-Gel Ink	
081546.0303.1	United States of America	C/P	161577781	20-Sep-2019	10397050	02-Feb-2021	Granted	Nickel Oxide Sol-Gel Ink
081546.0404	United States of America	Div	171136503	29-Dec-2020		Published	Nickel Oxide Sol-Gel Ink	

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081546.0322	United States of America	PRO	62/836376	19-Apr-2019			Closed	Method for Solvent Free Perovskite Deposition
081546.0322.1	United States of America	C/P	16/852142	17-Apr-2020			Published	Method for Solvent Free Perovskite Deposition
081546.0323	United States of America	ORD	16/695438	26-Nov-2019			Published	2D Perovskite Tandem Photovoltaic Devices
081546.0325	United States of America	PRO	62/837056	22-Apr-2019			Abandoned	Inverter for Perovskite Solar Cells
081546.0332	United States of America	ORD	16/682254	13-Nov-2019			Published	Perovskite Material Photovoltaic Device and Method for Assembly
081546.0335	United States of America	PRO	62/941345	27-Nov-2019			Closed	Non-Fullerene Acceptors (NFAs) as Interfacial Layers in Perovskite Semiconductor Devices
081546.0335.1	United States of America	C/P	17/102211	23-Nov-2020			Published	Non-Fullerene Acceptors (NFAs) as Interfacial Layers in Perovskite Semiconductor Devices
081546.0341	United States of America	C/P	16/685831	28-Oct-2019			Published	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0361	United States of America	PRO	62/841066	27-Nov-2019			Closed	Metal Oxide Nanoparticle Electron Transport Layers in Perovskite Semiconductor Devices

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081546.03811	United States of America	C/P	171186302	27-Nov-2020			Allowed	Metal Oxide Nanoparticle Electron Transport Layers in Perovskite Semiconductor Devices
081546.0372	United States of America	PRO	62/941381	27-Nov-2019			Closed	Reusable Interface for Solar Cell Test and Characterization
081546.03721	United States of America	C/P	171163017	27-Nov-2020			Published	Reusable Interface for Solar Cell Test and Characterization
081546.0213	Vietnam	PCT	1-2016-01922	24-Nov-2014			Allowed	Perovskite and other Solar Cell Materials
081546.0230	Vietnam	PCT	1-2017-00521	30-Jul-2015			Published	Method Of Preparing A Perovskite Material And Perovskite Material Prepared Therefrom
081546.0264	Vietnam	PCT	1-2017-04813	12-May-2018			Pending	Titanate Interfacial Layers in Perovskite Material Devices
081546.0242	Vietnam	PCT	1-2017-02308	19-Nov-2015			Pending	Bi- and Tri-layer Interfacial Layers in Perovskite Material Devices
081546.0239	Vietnam	PCT	1-2018-03093	06-Jul-2016			Pending	Perovskite Material Layer Processing
081546.0294	Vietnam	PCT	1201801739	26-Sep-2016			Pending	System and Method for Testing Photosensitive Device Degradation

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081546.0354	Vietnam	PCT	12031906171	12-Apr-2018			Pending	Hybrid Perovskite Material Processing
081546.0385	Vietnam	Div					Unfiled	(Solar)234-VN01) Hybrid Perovskite Material Processing (Div + VN0354)
081546.0424	Vietnam	PCT	1-2021-03675	18-Jun-2021			Pending	Enhanced Perovskite Materials for Photovoltaic Devices
081546.0437	Vietnam	PCT	1-2021-03683	18-Jun-2021			Pending	Nickel Oxide Sol-Gel Ink
081546.0439	Vietnam	PCT	1-2021-03673	18-Jun-2021			Pending	Enhanced Perovskite Materials for Photovoltaic Devices

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