504044444 10/11/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4091105

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
THOMAS ROBERT BOWDEN	04/25/2014
ALAN B DOERR	04/25/2014
JOHN FRANZ	04/25/2014
MELVIN K BENEDICT	04/28/2014
JOSEPH ALLEN	04/25/2014
JOHN NORTON	04/25/2014
BINH NGUYEN	04/25/2014

RECEIVING PARTY DATA

Name:	HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.
Street Address:	11445 COMPAQ CENTER DRIVE WEST
City:	HOUSTON
State/Country:	TEXAS
Postal Code:	77070

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15120511

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: (970) 898-7444

Email: hpe.ip.mail@hpe.com

Correspondent Name: HEWLETT PACKARD ENTERPRISE
Address Line 1: 3404 E. HARMONY ROAD MS 79
Address Line 4: FORT COLLINS, COLORADO 80528

ATTORNEY DOCKET NUMBER:	90250520
NAME OF SUBMITTER:	BE HENRY
SIGNATURE:	/Be Henry/
DATE SIGNED:	10/11/2016

PATENT 504044444 REEL: 039983 FRAME: 0549

Total Attachments: 12 source=90250520-Assignment#page1.tif source=90250520-Assignment#page2.tif source=90250520-Assignment#page3.tif source=90250520-Assignment#page4.tif source=90250520-Assignment#page5.tif source=90250520-Assignment#page6.tif source=90250520-Assignment#page7.tif source=90250520-Assignment#page8.tif source=90250520-Assignment#page9.tif source=90250520-Assignment#page10.tif source=90250520-Assignment#page11.tif source=90250520-Assignment#page12.tif

PATENT REEL: 039983 FRAME: 0550 HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 E. Harmony Road

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Mail Stop 35		RECORD ID:	83826119
Fort Collins, Colorado 80528			
	ASSIGNMENT OF PA		
receipt of which is hereby and DEVELOPMENT COMPANY, I Texas, (hereinafter HPDC), and	cknowledged, and in furt P., a Texas Limited Part d to its subsidiaries and aff	herance of my/our ob- inership having its princ filiates, to assign and tra	pod and valuable consideration, the ligations to HEWLETT-PACKARD cipal place of business in Houston, ansfer to HPDC, its successors and under an application for Patent
THERMAL MANAGEMENT AS	SSEMBLY		
Filing Date: August 19	, 2016	Application No.:	15/120511
divisionals, and renewals of an	d substitutes for said applie	cation for said Patent, a	ations, continuations-in-part (C-I-P's), and any and all other Patent of any eexaminations, or extensions of said
by HPDC, its successors, assign	ns, nominees or legal repre- nted, reissued or extended,	sentatives, to the full end as fully and entirely as t	any country, to be held and enjoyed of of the term or terms for which said the same would have been held and
executed and will not execute are sime a request is made, and with perfect the title to said invention(nominees or legal representative said invention(s) or improvement papers, to execute all disclaimerightful oaths and declarations, and legal representatives to obta	by agreement in conflict here out undue delay, execute ar s) or improvement(s), said a s, and I/we agree to commu- s(s), said application and sa ers and divisionals, continue and generally to do everyth in and enforce, for its or the countries provided the ex	ewith, and I/we further condideliver all such papers application and said Pateunicate to HPDC, or to its id Patent, to testify in any ations, C-I-P's, reissue a ling possible to aid HPDC ir own benefit, proper patent.	erein assigned, and that I/we have not venant and agree that I/we will, each as may be necessary or desirable to nt, to HPDC, its successors, assigns, nominee, all known facts respecting y legal proceedings, to sign all lawful foreign applications, to make all C, its successors, assigns, nominees tent protection for said invention(s) or incurred by me/us in lending such
applications as aforesaid, to issu	ue to HPDC, as assignee of which may be issued and	f the entire right, title and	whose duty it is to issue patents on d interest, any and all Patent for said esult of the application aforesaid, in
			late and application number of said on as the same shall have been made

IN WITNESS WHEREOF, I/we hereunto set my/our hand(s) and seal(s):				
Auge-	Annua sananan ar	04/25/2016		
Inventor's Signature		Date		
Thomas Robert Bowden				
Inventor's Typed Name				
Inventor's Signature		Date		
Alan B Doerr				
Inventor's Typed Name				
Rev 1/ 2013 (Assignment)	Page 1 of 2		•	

PATENT APPLICATION

Mail Stop 35	RECORD ID: 83826119
Fort Collins, Colorado 80528	
ASSIGNME	NT OF PATENT APPLICATION (cont.)
Inventor's Signature	Date
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John Franz	
Inventor's Typed Name	
Inventor's Signature	Date
Melvin K Benedict	
Inventor's Typed Name	
Inventor's Signature	Date
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Joseph Allen Inventor's Typed Name	
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Inventor's Signature	Date
John Norton Inventor's Typed Name	
inventor a Typed Name	
Binh Nguyen	
Inventor's Signature	Date
Inventor's Typed Name	
Inventor's Signature	Date
Inventor's Typed Name	

ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas, (hereinafter HPDC), and to its subsidiaries and affiliates, to assign and transfer to HPDC, its successors and assigns, the entire right, title and interest, including the right of priority, in, to and under an application for Patent entitled:

Texas, (hereinaft assigns, the entitled:	ter HPDC), and to its subsidiaries a ire right, title and interest, including	nd affiliates, to assign and traight of priority, in, to are	nsfer to HPDC, its successors and id under an application for Patent
THERMAL MAN	AGEMENT ASSEMBLY		
Filing Date:	August 19, 2016	Application No.:	15/120511
divisionals, and r	n(s) and improvement(s) set forth the renewals of and substitutes for said which may be granted thereon or the	application for said Patent, ar	nd any and all other Patent of any
by HPDC, its suc Patent respective	ally authorize HPDC to file application occasors, assigns, nominees or legal ly may be granted, reissued or exter had this assignment, and transfer not	representatives, to the full end	of the term or terms for which said
executed and will time a request is a perfect the title to nominees or lega said invention(s) a papers, to execu- rightful oaths and and legal represe improvement(s) is cooperation and a	reby covenant that I/we have full right not execute any agreement in conflict made, and without undue delay, exect said invention(s) or improvement(s), I representatives, and I/we agree to corrimprovement(s), said application at the all disclaimers and divisionals, conducted the declarations, and generally to do execute the contains and enforce, for its in any and all countries provided the assistance are paid by HPDC; whereby authorize and request the offici	ot herewith, and I/we further covute and deliver all such papers said application and said Paten ommunicate to HPDC, or to its and said Patent, to testify in any entinuations, C-I-P's, reissue are verything possible to aid HPDC or their own benefit, proper patene expenses which may be in all of any country or countries well as the proper patent of the proper paten	enant and agree that I/we will, each as may be necessary or desirable to t, to HPDC, its successors, assigns, nominee, all known facts respecting legal proceedings, to sign all lawfund foreign applications, to make all, its successors, assigns, nominees ent protection for said invention(s) or neurred by me/us in lending such whose duty it is to issue patents on
invention(s) or in	foresaid, to issue to HPDC, as assign reprovement(s) which may be issued the terms of this assignment.		
I/we further application for Patknown to them.	authorize and direct the attorneys of tent, now identified by the Record ID a	of record to insert the filing date and title set forth above, as soon	te and application number of said as the same shall have been made
IN WITNESS	WHEREOF, I/we hereunto set my/	our hand(s) and seal(s):	
Inventor's Signature	9	Date	
Thomas Robert Bo	wden		
Inventor's Typed N	Blow	9/2	5/14
Inventor's Signature		Date	
Alan B Doerr Inventor's Typed Na	ame		

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PATENT APPLICATION

Mail Stop 35		RECORD ID:	83826119	
Fort Collins, Colorado 80528	_			
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nventor's Signature		Date		
John Franz				
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Melvin K Benedict				
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nventor's Signature		Date		
Joseph Allen				
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Inventor's Signature		Date		
John Norton Inventor's Typed Name		20142		
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Binh Nguyen				
Inventor's Signature		Dat	te	
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HEWLETT-PACKARD COMPANY
Intellectual Property Administrator
3404 E. Harmony Road
3404 E. Harmony Road Mail Stop 35
Fort Collins, Colorado 80528

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Fort Collins, Colorado 80528	_		
		PATENT APPLICATION	
receipt of which is hereby a DEVELOPMENT COMPANY, Texas, (hereinafter HPDC), and	acknowledged, and in L.P., a Texas Limited ad to its subsidiaries and	furtherance of my/our oblig Partnership having its princip d affiliates, to assign and tran	od and valuable consideration, the gations to HEWLETT-PACKARD pal place of business in Houston, asfer to HPDC, its successors and d under an application for Patent
THERMAL MANAGEMENT A	SSEMBLY		
Filing Date: August 19		Application No.:	15/120511
divisionals, and renewals of ar	nd substitutes for said a	application for said Patent, an	ions, continuations-in-part (C-I-P's), d any and all other Patent of any examinations, or extensions of said
by HPDC, its successors, assig	ns, nominees or legal re nted, reissued or extend	epresentatives, to the full end led, as fully and entirely as the	any country, to be held and enjoyed of the term or terms for which said e same would have been held and
executed and will not execute a time a request is made, and with perfect the title to said invention nominees or legal representative said invention(s) or improvement papers, to execute all disclaimer rightful oaths and declarations, and legal representatives to obtain	ny agreement in conflict nout undue delay, execut (s) or improvement(s), saes, and I/we agree to cont(s), said application ancers and divisionals, contant generally to do eveain and enforce, for its or countries provided the	herewith, and I/we further cover e and deliver all such papers a aid application and said Patent mmunicate to HPDC, or to its real disaid Patent, to testify in any litinuations, C-I-P's, reissue and rything possible to aid HPDC, their own benefit, proper pater	ein assigned, and that I/we have not enant and agree that I/we will, each as may be necessary or desirable to the total
applications as aforesaid, to iss	ue to HPDC, as assigne which may be issued	e of the entire right, title and i	those duty it is to issue patents on nterest, any and all Patent for said all of the application aforesaid, in
			te and application number of said as the same shall have been made

IN WITNESS WHEREOF, I/we her	eunto set my/our hand(s) an	id seal(s):	
Inventor's Signature		Date	5 4 4 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5
Thomas Robert Bowden Inventor's Typed Name			
Inventor's Signature		Date	
Alan B Doerr Inventor's Typed Name			
Rev 1/ 2013 (Assignment)	Page 1 of 2		

HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 E. Harmony Road Mail Stop 35

PATENT APPLICATION

Fort Collins, Colorado 80528	RECORD ID: 83826119
ASSIGNMENT C	DF PATENT APPLICATION (cont.)
444	4/25/2014
Inventor's Signature	Date
John Franz	
Inventor's Typed Name	***************************************
Inventor's Signature	Date
Melvin K Benedict	
Inventor's Typed Name	***************************************
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Inventor's Signature	Date
Joseph Allen	
Inventor's Typed Name	······································
Inventor's Signature	Date
John Norton	
Inventor's Typed Name	
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Binh Nguyen	
Inventor's Signature	Date
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Inventor's Signature	Date
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Inventor's Typed Name	

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ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the

receipt of which is hereby acknowledged, and in furtherand DEVELOPMENT COMPANY, L.P., a Texas Limited Partnershi Texas, (hereinafter HPDC), and to its subsidiaries and affiliates assigns, the entire right, title and interest, including the right centitled:	p having its princip , to assign and tran	pal place of business in Houston, sfer to HPDC, its successors and
THERMAL MANAGEMENT ASSEMBLY		
Filing Date: August 19, 2016 App	plication No.:	15/120511
and the invention(s) and improvement(s) set forth therein, and ar divisionals, and renewals of and substitutes for said application countries thereto which may be granted thereon or therefore; and Patent.	for said Patent, an	d any and all other Patent of any
I/we additionally authorize HPDC to file applications in my/our by HPDC, its successors, assigns, nominees or legal representati Patent respectively may be granted, reissued or extended, as full enjoyed by me/us had this assignment, and transfer not been made	ves, to the full end or yes, to the full end of the full end o	of the term or terms for which said
AND I/we hereby covenant that I/we have full right to convey the executed and will not execute any agreement in conflict herewith, a time a request is made, and without undue delay, execute and delive perfect the title to said invention(s) or improvement(s), said application nominees or legal representatives, and I/we agree to communicate said invention(s) or improvement(s), said application and said Pater papers, to execute all disclaimers and divisionals, continuations, rightful oaths and declarations, and generally to do everything post and legal representatives to obtain and enforce, for its or their own improvement(s) in any and all countries provided the expenses cooperation and assistance are paid by HPDC;	and I/we further cover ver all such papers a tion and said Patent to HPDC, or to its r ent, to testify in any C-I-P's, reissue an ssible to aid HPDC, benefit, proper pate	enant and agree that I/we will, each is may be necessary or desirable to , to HPDC, its successors, assigns, nominee, all known facts respecting legal proceedings, to sign all lawfuld foreign applications, to make all its successors, assigns, nominees nt protection for said invention(s) or
AND I/we hereby authorize and request the official of any co applications as aforesaid, to issue to HPDC, as assignee of the elinvention(s) or improvement(s) which may be issued and grant accordance with the terms of this assignment.	ntire right, title and i	nterest, any and all Patent for said
I/we further authorize and direct the attorneys of record to application for Patent, now identified by the Record ID and title set f known to them.		
IN WITNESS WHEREOF, I/we hereunto set my/our hand(s)	and seal(s):	
Inventor's Signature	Date	
Thomas Robert Bowden Inventor's Typed Name		
Inventor's Signature	Date	
Alan B Doerr Inventor's Typed Name	····	

PATENT APPLICATION

83826119

RECORD ID:

ASSIGNMENT OF PATENT	APPLICATION (cont.)
Inventor's Signature	Date
John Franz	
Inventor's Typed Name	28 - Apr - 2014
Melvin K Benedict nventor's Typed Name	 .
nventor's Signature	Date
loseph Allen nventor's Typed Name	
nventor's Signature	Date
lohn Norton nventor's Typed Name	

Inventor's Typed Name

Inventor's Signature

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Inventor's Typed Name

Binh Nguyen

Page 2 of 2

Date

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HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 Mail Fort

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E. Harmony Road		00000440
Stop 35	RECORD ID:	83826119
Collins, Colorado 80528		

ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD

DEVELOPMENT COMPANY, L.P., a Texas Limited Partne Texas, (hereinafter HPDC), and to its subsidiaries and affilia assigns, the entire right, title and interest, including the right entitled:	rship having its printes, to assign and to	cipal place of business in Houston, ransfer to HPDC, its successors and
THERMAL MANAGEMENT ASSEMBLY		
	Application No.: _	15/120511
and the invention(s) and improvement(s) set forth therein, and divisionals, and renewals of and substitutes for said application countries thereto which may be granted thereon or therefore; a Patent.	ion for said Patent,	and any and all other Patent of any
I/we additionally authorize HPDC to file applications in my/by HPDC, its successors, assigns, nominees or legal represer Patent respectively may be granted, reissued or extended, as enjoyed by me/us had this assignment, and transfer not been may	itatives, to the full er fully and entirely as	nd of the term or terms for which said
AND I/we hereby covenant that I/we have full right to convex executed and will not execute any agreement in conflict herewitime a request is made, and without undue delay, execute and operfect the title to said invention(s) or improvement(s), said approximates or legal representatives, and I/we agree to communicate said invention(s) or improvement(s), said application and said I papers, to execute all disclaimers and divisionals, continuation rightful oaths and declarations, and generally to do everything and legal representatives to obtain and enforce, for its or their comprovement(s) in any and all countries provided the expection and assistance are paid by HPDC;	th, and I/we further of deliver all such paper dication and said Pat cate to HPDC, or to i Patent, to testify in a ons, C-I-P's, reissue possible to aid HPD own benefit, proper p	ovenant and agree that I/we will, each is as may be necessary or desirable to ent, to HPDC, its successors, assigns, its nominee, all known facts respecting my legal proceedings, to sign all lawful and foreign applications, to make all DC, its successors, assigns, nominees atent protection for said invention(s) or
AND I/we hereby authorize and request the official of any applications as aforesaid, to issue to HPDC, as assignee of th invention(s) or improvement(s) which may be issued and graccordance with the terms of this assignment.	e entire right, title ar	nd interest, any and all Patent for said
I/we further authorize and direct the attorneys of record application for Patent, now identified by the Record ID and title sknown to them.	to insert the filing set forth above, as so	date and application number of said on as the same shall have been made
IN WITNESS WHEREOF, I/we hereunto set my/our han	id(s) and seal(s):	
Inventor's Signature	Date	
Thomas Robert Bowden		
Inventor's Typed Name		
Inventor's Signature	Date	
Alan B Doerr	M-00-1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	
Inventor's Typed Name		

HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 E. Harmony Road Mail Stop 35

PATENT APPLICATION

Mail Stop 35	RECORD ID:	83826119
Fort Collins, Colorado 80528		(Annet)
A	SSIGNMENT OF PATENT APPLICATION	(cont.)
Inventor's Signature	Date	
John Franz		
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Inventor's Signature	Date	
Melvin K Benedict		
Inventor's Typed Name		

Inventor's Signature	Date	
Joseph Allen	·	
Inventor's Typed Name		
Inventor's Signature	Date	
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John Norton Inventor's Typed Name		
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Nguyah		04/25/2014
Inventor's Signature		Date
Binh Nguyen		
Inventor's Typed Name		
Inventor's Signature	Date	
Inventor's Typed Name		

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RECORD ID:	83826119
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ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas, (hereinafter HPDC), and to its subsidiaries and affiliates, to assign and transfer to HPDC, its successors and assigns, the entire right, title and interest, including the right of priority, in, to and under an application for Patent entitled:

THERMAL MAN	AGEMENT ASSEMBLY		
Filing Date:	August 19, 2016	Application No.:	15/120511
divisionals, and r	enewals of and substitutes for sa	id application for said Patent, an	ions, continuations-in-part (C-l-P's) dany and all other Patent of an examinations, or extensions of said

I/we additionally authorize HPDC to file applications in my/our name for Patent in any country, to be held and enjoyed by HPDC, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, and transfer not been made;

AND I/we hereby covenant that I/we have full right to convey the entire interest herein assigned, and that I/we have not executed and will not execute any agreement in conflict herewith, and I/we further covenant and agree that I/we will, each time a request is made, and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said invention(s) or improvement(s), said application and said Patent, to HPDC, its successors, assigns, nominees or legal representatives, and I/we agree to communicate to HPDC, or to its nominee, all known facts respecting said invention(s) or improvement(s), said application and said Patent, to testify in any legal proceedings, to sign all lawful papers, to execute all disclaimers and divisionals, continuations, C-I-P's, reissue and foreign applications, to make all rightful oaths and declarations, and generally to do everything possible to aid HPDC, its successors, assigns, nominees and legal representatives to obtain and enforce, for its or their own benefit, proper patent protection for said invention(s) or improvement(s) in any and all countries provided the expenses which may be incurred by me/us in lending such cooperation and assistance are paid by HPDC;

AND I/we hereby authorize and request the official of any country or countries whose duty it is to issue patents on applications as aforesaid, to issue to HPDC, as assignee of the entire right, title and interest, any and all Patent for said invention(s) or improvement(s) which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment.

I/we further authorize and direct the attorneys of record to insert the filing date and application number of said application for Patent, now identified by the Record ID and title set forth above, as soon as the same shall have been made known to them.

IN WITNESS WHEREOF, I/we hereunto set my/our hand(s) and seal(s):

Inventor's Signature			Date	
Thomas Robert Bowden				
Inventor's Typed Name				4 .
Inventor's Signature			Date	
Alan B Doerr				
Inventor's Typed Name	ŧ			
Rev 1/ 2013 (Assignment)		Page 1 of 2		

PATENT APPLICATION

Mail Stop 35 Fort Collins, Colorado 80528	RECORD ID:	83826119		
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Inventor's Signature	Date			
John Franz Inventor's Typed Name				
Inventor's Signature	Date			
Melvin K Benedict Inventor's Typed Name		RB14		
Inventor's Signature	Date Date	Com garage, et 1		
Joseph Allen Inventor's Typed Name				
Jangentor's Signature	<u>4/2</u>	2-5/14		
John Norton Inventor's Typed Name				
Bình Nguyen Inventor's Signature	Dat			
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nventor's Signature	Date			
Inventor's Typed Name				

Page 2 of 2

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