

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7065485

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	INTERNATIONAL BUSINESS MACHINES CORPORATION	12/27/2019
RECEIVING PARTY DATA		
Name:	TESSERA, INC.	
Street Address:	3025 ORCHARD PARKWAY	
City:	SAN JOSE	
State/Country:	CALIFORNIA	
Postal Code:	95134	
PROPERTY NUMBERS Total: 1		
	Property Type	Number
	Application Number:	17546511
CORRESPONDENCE DATA		
Fax Number:	(509)944-4692	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
Phone:	509-324-9256	
Email:	jill@leehayes.com	
Correspondent Name:	LEE & HAYES, P.C.	
Address Line 1:	601 W. RIVERSIDE AVE, SUITE 1400	
Address Line 4:	SPOKANE, WASHINGTON 99201	
ATTORNEY DOCKET NUMBER:	X05-0128USC4	
NAME OF SUBMITTER:	JILL RYDER	
SIGNATURE:	/Jill Ryder/	
DATE SIGNED:	12/09/2021	
Total Attachments: 13 source=2LQ2501#page1.tif source=2LQ2501#page2.tif source=2LQ2501#page3.tif source=2LQ2501#page4.tif source=2LQ2501#page5.tif source=2LQ2501#page6.tif		

source=2LQ2501#page7.tif
source=2LQ2501#page8.tif
source=2LQ2501#page9.tif
source=2LQ2501#page10.tif
source=2LQ2501#page11.tif
source=2LQ2501#page12.tif
source=2LQ2501#page13.tif

Recordable Patent Assignment and Reservation

For good and valuable consideration, the receipt of which is hereby acknowledged, and subject to the reservations stated in the Patent Assignment Agreement Reference No. L190373 between the parties with an effective time and date of 11:59pm United States Eastern Time on December 19, 2019 ("Effective Time & Date") ("Patent Assignment Agreement"), International Business Machines Corporation, a New York corporation having a place of business at New Orchard Road, Armonk, New York, 10504, U.S.A. (hereinafter "ASSIGNOR"), hereby grants and assigns to TESSERA, INC., a Delaware limited liability company having a place of business at 3025 Orchard Parkway, San Jose, California 95134 (hereinafter "ASSIGNEE"), all of IBM's right, title and interest in and to the United States Letters Patents and the United States Patent Applications identified in Exhibits A and C, attached hereto (hereinafter, collectively, "ASSIGNED PATENTS"), to have and to hold the same, unto ASSIGNEE for its own use and enjoyment and for the use and enjoyment of its successors and assigns, including all damages for infringement of any of the ASSIGNED PATENTS accruing on or after the Effective Time & Date and the sole right to sue therefore under such ASSIGNED PATENTS, for the full term or terms of all such ASSIGNED PATENTS, subject to all rights granted under the ASSIGNED PATENTS to third parties prior to said Effective Time & Date.

ASSIGNOR hereby reserves and retains, for the benefit of itself and its subsidiaries and its and their successors and assigns, the rights and licenses set forth in the Patent Assignment Agreement.

IN WITNESS WHEREOF, ASSIGNOR has caused this Patent Assignment and Reservation to be duly signed on its behalf.

Signature: 
Name: Lisa M. Regan

Date: Dec. 27, 2019

Title: Vice President, Finance & Operations, Research and Intellectual Property

EXHIBIT A

ASSIGNED PATENTS

EXHIBIT A-I

LISTED PATENTS (United States)

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
BUR920080285US2	US	8169055	12/634726	12/10/2009	5/1/2012
BUR920100010US1	US	8188591	12/835306	7/13/2010	5/29/2012
BUR920100010US2	US	8232139	13/426835	3/22/2012	7/31/2012
*BUR920130117US1	US	9159671	14/083929	11/19/2013	10/13/2015
BUR920130117US2	US	9230914	14/526741	10/29/2014	1/5/2016
BUR920130117US3	US	9613853	14/883162	10/14/2015	4/4/2017
FIS920050163US1	US	7301236	11/163410	10/18/2005	11/27/2007
*FIS920050163US2	US	7439173	11/869044	10/9/2007	10/21/2008
FIS920050184US1	US	7456095	11/163038	10/3/2005	11/25/2008
FIS920050184US2	US	8298385	12/047561	3/13/2008	10/30/2012
*FIS920050184US3	US	7759741	12/049595	3/17/2008	7/20/2010
FIS920090108US1	US	8558345	12/614883	11/9/2009	10/15/2013
FIS920090108US2	US	8785289	13/975519	8/26/2013	7/22/2014
FIS920120244US1	US	9202743	13/716636	12/17/2012	12/1/2015
FIS920120244US2	US	9293412	14/559962	12/4/2014	3/22/2016
FIS920120324US1	US	9190321	13/858125	4/8/2013	11/17/2015
FIS920120324US2	US	9691656	14/817868	8/4/2015	6/27/2017
FIS920130234US1	US	9349836	14/154206	1/14/2014	5/24/2016
FIS920130234US2	US	9515168	14/884045	10/15/2015	12/6/2016
FIS920130234US3	US	9601380	14/883913	10/15/2015	3/21/2017
FIS920130234US4	US	9391175	14/883882	10/15/2015	7/12/2016
FIS920130234US5	US	9679993	15/179699	6/10/2016	6/13/2017
FIS920130265US1	US	9385123	14/281931	5/20/2014	7/5/2016
FIS920140039US1	US	9515164	14/198976	3/6/2014	12/6/2016
FIS920140039US2	US	10395993	15/284567	10/4/2016	8/27/2019
FIS920140045US1	US	9269792	14/299300	6/9/2014	2/23/2016
FIS920140113US1	US	9305845	14/477450	9/4/2014	4/5/2016
FIS920140113US2	US	9842737	15/046055	2/17/2016	12/12/2017
FIS920140131US05	US	10325806	15/825646	11/29/2017	6/18/2019
FIS920140131US06	US	10224241	15/825889	11/29/2017	3/5/2019
FIS920140131US1	US	9455182	14/466539	8/22/2014	9/27/2016
FIS920140131US2	US	9601371	14/882568	10/14/2015	3/21/2017
FIS920140131US3	US	9947581	15/214760	7/20/2016	4/17/2018

FIS920140131US4	US	9947579	15/417390	1/27/2017	4/17/2018
FIS920140138US03	US	10170587	15/795445	10/27/2017	1/1/2019
FIS920140138US1	US	9472628	14/330158	7/14/2014	10/18/2016
FIS920140138US2	US	10158001	15/244499	8/23/2016	12/18/2018
FIS920140148US1	US	9613954	14/325547	7/8/2014	4/4/2017
FIS920140215US1	US	9455195	14/561550	12/5/2014	9/27/2016
FIS920140215US2	US	9761679	15/070154	3/15/2016	9/12/2017
FIS920140215US3	US	9735058	15/211742	7/15/2016	8/15/2017
FIS920140244US1	US	9337094	14/589222	1/5/2015	5/10/2016
FIS920140254US02	US	10121852	15/794616	10/26/2017	11/6/2018
FIS920140254US03	US	10121853	15/794636	10/26/2017	11/6/2018
FIS920140254US1	US	9876074	14/719829	5/22/2015	1/23/2018
FIS920150002US1	US	9356027	14/708885	5/11/2015	5/31/2016
FIS920150002US2	US	9576858	15/149360	5/9/2016	2/21/2017
FIS920150002US3	US	9627270	15/149326	5/9/2016	4/18/2017
FIS920150011US04	US	9985024	15/494586	4/24/2017	5/29/2018
FIS920150011US05	US	10276569	15/923097	3/16/2018	4/30/2019
FIS920150011US1	US	9443853	14/680099	4/7/2015	9/13/2016
FIS920150011US2	US	9704753	15/203847	7/7/2016	7/11/2017
FIS920150011US3	US	9852951	15/237802	8/16/2016	12/26/2017
FIS920150046US1	US	9437502	14/738316	6/12/2015	9/6/2016
FIS920150071US1	US	9287135	14/721430	5/26/2015	3/15/2016
FIS920150083US02	US	10079175	15/601488	5/22/2017	9/18/2018
FIS920150083US1	US	9728450	14/749788	6/25/2015	8/8/2017
FIS920150117US05	US	10141402	15/827053	11/30/2017	11/27/2018
FIS920150117US06	US	10276658	15/813277	11/15/2017	4/30/2019
FIS920150117US07	US	10224247	16/115953	8/29/2018	3/5/2019
FIS920150117US08	US	10319640	16/115967	8/29/2018	6/11/2019
FIS920150117US1	US	9685507	14/750013	6/25/2015	6/20/2017
FIS920150117US2	US	10157797	15/182043	6/14/2016	12/18/2018
FIS920150117US3	US	9613869	15/182048	6/14/2016	4/4/2017
FIS920150117US4	US	10014221	15/417597	1/27/2017	7/3/2018
FIS920150165US1	US	9431486	14/953851	11/30/2015	8/30/2016
FIS920150165US2	US	9461168	15/046559	2/18/2016	10/4/2016
FIS920150165US3	US	9905421	15/221758	7/28/2016	2/27/2018
FIS920150191US04	US	10256186	15/816508	11/17/2017	4/9/2019
FIS920150191US1	US	9502350	15/009108	1/28/2016	11/22/2016
FIS920150191US2	US	9601426	15/166570	5/27/2016	3/21/2017
FIS920150191US3	US	9852980	15/405344	1/13/2017	12/26/2017
FIS920150198US1	US	9466693	14/943652	11/17/2015	10/11/2016
FIS920150198US2	US	10418450	15/136238	4/22/2016	9/17/2019
FIS920150219US1	US	9564446	14/971212	12/16/2015	2/7/2017

FIS920150219US2	US	10096521	15/396993	1/3/2017	10/9/2018
FIS920150231US1	US	9583400	14/996563	1/15/2016	2/28/2017
FIS920150244US1	US	9799605	14/952017	11/25/2015	10/24/2017
FIS920150244US2	US	10276435	15/470038	3/27/2017	4/30/2019
FIS920150267US1	US	10256296	14/951333	11/24/2015	4/9/2019
FIS920150267US2	US	10355080	15/206127	7/8/2016	7/16/2019
FIS920160022US02	US	10297569	15/823222	11/27/2017	5/21/2019
FIS920160022US1	US	9941241	15/198992	6/30/2016	4/10/2018
FIS920160043US02	US	9947655	15/650530	7/14/2017	4/17/2018
FIS920160043US1	US	9716088	15/199052	6/30/2016	7/25/2017
FIS920160044US1	US	9620479	15/199129	6/30/2016	4/11/2017
FIS920170003US02	US	10103144	15/799247	10/31/2017	10/16/2018
FIS920170003US03	US	10103145	15/799286	10/31/2017	10/16/2018
FIS920170003US04	US	10170474	15/862976	1/5/2018	1/1/2019
FIS920170003US1	US	9947660	15/489920	4/18/2017	4/17/2018
P201705085US01	US	10424651	15/880757	1/26/2018	9/24/2019
YOR820161815US01	US	10020254	15/727956	10/9/2017	7/10/2018
YOR820161815US02	US	10020255	15/798794	10/31/2017	7/10/2018
YOR820162685US01	US	10204829	15/870213	1/12/2018	2/12/2019
YOR820170142US01	US	10361117	15/837361	12/11/2017	7/23/2019
YOR820170167US01	US	10410928	15/824537	11/28/2017	9/10/2019
YOR920070753US1	US	7843063	12/031103	2/14/2008	11/30/2010
*YOR920070753US2	US	8008199	12/869113	8/26/2010	8/30/2011
YOR920110290US05	US	10326074	15/671847	8/8/2017	6/18/2019
YOR920110290US06	US	10424727	16/364794	3/26/2019	9/24/2019
YOR920110290US1	US	8928100	13/168477	6/24/2011	1/6/2015
*YOR920110290US2	US	9082963	14/556967	12/1/2014	7/14/2015
YOR920110290US3	US	9318698	14/699716	4/29/2015	4/19/2016
YOR920110290US4	US	9793471	15/088849	4/1/2016	10/17/2017
YOR920110671US1	US	8648454	13/396030	2/14/2012	2/11/2014
YOR920120458US1	US	8659077	13/615343	9/13/2012	2/25/2014
YOR920120458US2	US	8647972	13/618255	9/14/2012	2/11/2014
YOR920120867US1	US	8802512	13/739182	1/11/2013	8/12/2014
YOR920120867US2	US	9000413	13/970931	8/20/2013	4/7/2015
YOR920120867US3	US	10319860	14/667349	3/24/2015	6/11/2019
YOR920130256US1	US	9257289	14/197959	3/5/2014	2/9/2016
YOR920130256US2	US	9685521	14/984194	12/30/2015	6/20/2017
YOR920130378US1	US	8969149	13/893896	5/14/2013	3/3/2015
YOR920130378US2	US	8994081	14/028053	9/16/2013	3/31/2015
YOR920130542US1	US	9324710	14/187896	2/24/2014	4/26/2016
YOR920130613US03	US	10170327	15/613774	6/5/2017	1/1/2019
YOR920130613US1	US	9064901	14/139121	12/23/2013	6/23/2015

YOR920130613US2	US	9728419	14/697306	4/27/2015	8/8/2017
YOR920130623US1	US	9331146	14/301587	6/11/2014	5/3/2016
YOR920130623US2	US	9647062	14/805669	7/22/2015	5/9/2017
YOR920130818US1	US	9196612	14/225812	3/26/2014	11/24/2015
YOR920130818US2	US	9437499	14/830829	8/20/2015	9/6/2016
YOR920130854US06	US	10224420	15/656326	7/21/2017	3/5/2019
YOR920130854US07	US	10170594	15/715593	9/26/2017	1/1/2019
YOR920130854US2	US	9559191	14/578842	12/22/2014	1/31/2017
YOR920130854US3	US	10084070	15/250166	8/29/2016	9/25/2018
YOR920130854US4	US	10103251	15/250207	8/29/2016	10/16/2018
YOR920130854US5	US	10109723	15/342477	11/3/2016	10/23/2018
YOR920130855US1	US	9252243	14/175441	2/7/2014	2/2/2016
YOR920130855US2	US	9391155	14/953908	11/30/2015	7/12/2016
YOR920130855US3	US	9583585	14/985711	12/31/2015	2/28/2017
YOR920130973US1	US	9324830	14/227345	3/27/2014	4/26/2016
YOR920130973US2	US	9634117	15/075260	3/21/2016	4/25/2017
YOR920130973US3	US	10037944	15/417940	1/27/2017	7/31/2018
YOR920140073US1	US	9349691	14/339704	7/24/2014	5/24/2016
YOR920140073US2	US	9859160	15/070411	3/15/2016	1/2/2018
YOR920140073US3	US	9953869	15/078066	3/23/2016	4/24/2018
YOR920140090US1	US	9419097	14/551322	11/24/2014	8/16/2016
YOR920140090US2	US	9685530	15/182726	6/15/2016	6/20/2017
YOR920140090US3	US	9620622	15/189579	6/22/2016	4/11/2017
YOR920140278US2	US	10367060	15/136048	4/22/2016	7/30/2019
YOR920140291US1	US	9305836	14/536751	11/10/2014	4/5/2016
YOR920140291US2	US	9960117	14/960483	12/7/2015	5/1/2018
YOR920140291US3	US	9711455	14/961966	12/8/2015	7/18/2017
YOR920140314US02	US	10056378	15/805420	11/7/2017	8/21/2018
YOR920140314US1	US	9859275	14/605142	1/26/2015	1/2/2018
YOR920140398US1	US	9269627	14/501654	9/30/2014	2/23/2016
YOR920140398US2	US	9659931	15/045950	2/17/2016	5/23/2017
YOR920140418US1	US	9728462	14/672350	3/30/2015	8/8/2017
YOR920140418US2	US	9536791	14/748424	6/24/2015	1/3/2017
YOR920140418US3	US	9985027	15/361794	11/28/2016	5/29/2018
YOR920140527US1	US	9419091	14/613667	2/4/2015	8/16/2016
YOR920150061US1	US	9484250	14/643011	3/10/2015	11/1/2016
YOR920150061US2	US	9761698	15/294376	10/14/2016	9/12/2017
YOR920150061US3	US	9786767	15/294391	10/14/2016	10/10/2017
YOR920150287US1	US	9786550	14/749811	6/25/2015	10/10/2017
YOR920150287US2	US	9799552	14/949386	11/23/2015	10/24/2017
YOR920150295US03	US	10347827	15/945220	4/4/2018	7/9/2019
YOR920150295US1	US	9537090	14/749770	6/25/2015	1/3/2017

YOR920150295US2	US	9978935	15/364409	11/30/2016	5/22/2018
YOR920150553US02	US	10211320	15/664811	7/31/2017	2/19/2019
YOR920150553US1	US	9722052	14/924162	10/27/2015	8/1/2017
YOR920150643US04	US	10249724	15/591385	5/10/2017	4/2/2019
YOR920150643US05	US	10355094	15/591396	5/10/2017	7/16/2019
YOR920150643US1	US	9960240	14/919201	10/21/2015	5/1/2018
YOR920150643US2	US	10032721	15/226143	8/2/2016	7/24/2018
YOR920150643US3	US	10037942	15/226157	8/2/2016	7/31/2018
YOR920150691US1	US	9653359	14/869066	9/29/2015	5/16/2017
YOR920150719US1	US	9349687	14/975725	12/19/2015	5/24/2016
YOR920150867US04	US	10170576	15/813634	11/15/2017	1/1/2019
YOR920150867US1	US	9583486	14/946245	11/19/2015	2/28/2017
YOR920150867US3	US	9735250	15/339096	10/31/2016	8/15/2017
YOR920150874US1	US	9449871	14/944355	11/18/2015	9/20/2016
YOR920150874US2	US	9780027	15/160546	5/20/2016	10/3/2017
YOR920150920US1	US	9362355	14/940685	11/13/2015	6/7/2016
YOR920150920US2	US	9508829	15/146031	5/4/2016	11/29/2016
YOR920150920US3	US	9853132	15/289467	10/10/2016	12/26/2017
YOR920151024US1	US	9735155	14/967570	12/14/2015	8/15/2017
YOR920151069US1	US	10304773	14/919143	10/21/2015	5/28/2019
YOR920151233US02	US	10062785	15/583310	5/1/2017	8/28/2018
YOR920151233US1	US	9716042	14/984201	12/30/2015	7/25/2017
YOR920151246US1	US	9455347	14/959046	12/4/2015	9/27/2016
YOR920151318US02	US	10170551	15/593933	5/12/2017	1/1/2019
YOR920151318US1	US	9722022	14/979916	12/28/2015	8/1/2017
YOR920151434US02	US	10020229	15/487685	4/14/2017	7/10/2018
YOR920151434US03	US	10388571	15/982558	5/17/2018	8/20/2019
YOR920151434US1	US	9691765	15/063735	3/8/2015	6/27/2017
YOR920151439US03	US	10062615	15/628821	6/21/2017	8/28/2018
YOR920151439US1	US	9484267	15/015347	2/4/2016	11/1/2016
YOR920151439US2	US	9735234	15/207802	7/12/2016	8/15/2017
YOR920151468US1	US	10096673	15/045759	2/17/2016	10/9/2018
YOR920160079US1	US	9837350	15/097033	4/12/2016	12/5/2017
YOR920160175US03	US	10043801	15/786828	10/18/2017	8/7/2018
YOR920160175US1	US	9608065	15/173132	6/3/2016	3/28/2017
YOR920160189US03	US	10304742	15/680711	8/18/2017	5/28/2019
YOR920160189US1	US	9870948	15/177917	6/9/2016	1/16/2018
YOR920160189US2	US	10347537	15/443451	2/27/2017	7/9/2019
YOR920160246US03	US	10224329	15/851095	12/21/2017	3/5/2019
YOR920160246US1	US	9793270	15/134497	4/21/2016	10/17/2017
YOR920160246US2	US	9899383	15/467690	3/23/2017	2/20/2018
YOR920160309US04	US	10224327	15/697539	9/7/2017	3/5/2019

YOR920160309US1	US	9793271	15/142450	4/29/2016	10/17/2017
YOR920160309US2	US	9589956	15/172593	6/3/2016	3/7/2017
YOR920160309US3	US	9653463	15/172598	6/3/2016	5/16/2017
YOR920160420US02	US	10115629	15/789416	10/20/2017	10/30/2018
YOR920160420US03	US	10418277	15/977437	5/11/2018	9/17/2019
YOR920160420US1	US	9892961	15/232341	8/9/2016	2/13/2018
YOR920160469US02	US	10224275	15/678328	8/16/2017	3/5/2019
YOR920160469US1	US	9806018	15/186600	6/20/2016	10/31/2017
YOR920160479US03	US	10014222	15/627927	6/20/2017	7/3/2018
YOR920160479US04	US	10204835	15/798886	10/31/2017	2/12/2019
YOR920160479US05	US	10262901	15/976226	5/10/2018	4/16/2019
YOR920160479US1	US	9768072	15/199352	6/30/2016	9/19/2017
YOR920160479US2	US	10170371	15/425158	2/6/2017	1/1/2019
YOR920160481US02	US	10224246	15/620095	6/12/2017	3/5/2019
YOR920160481US1	US	9805983	15/241898	8/19/2016	10/31/2017
YOR920160487US1	US	10083961	15/258513	9/7/2016	9/25/2018
YOR920160579US1	US	9779944	15/263959	9/13/2016	10/3/2017
YOR920160639US02	US	10269710	15/918870	3/12/2018	4/23/2019
YOR920160639US1	US	9935051	15/240700	8/18/2016	4/3/2018
YOR920160694US02	US	10121661	15/786090	10/17/2017	11/6/2018
YOR920160694US1	US	9934970	15/403371	1/11/2017	4/3/2018
YOR920160705US02	US	10109579	15/908377	2/28/2018	10/23/2018
YOR920160705US03	US	10366952	16/049442	7/30/2018	7/30/2019
YOR920160705US1	US	9997451	15/199321	6/30/2016	6/12/2018
YOR920160737US02	US	10134674	15/676263	8/14/2017	11/20/2018
YOR920160737US1	US	9780035	15/198721	6/30/2016	10/3/2017
YOR920160871US1	US	10217867	15/258378	9/7/2016	2/26/2019
YOR920160902US02	US	9892976	15/465962	3/22/2017	2/13/2018
YOR920160902US03	US	9881839	15/465989	3/22/2017	1/30/2018
YOR920160902US04	US	10103063	15/690601	8/30/2017	10/16/2018
YOR920160902US05	US	10249541	16/019916	6/27/2018	4/2/2019
YOR920160902US1	US	9704863	15/260509	9/9/2016	7/11/2017
YOR920160920US1	US	10211153	15/251775	8/30/2016	2/19/2019
YOR920160956US02	US	10304689	15/939677	3/29/2018	5/28/2019
YOR920160956US1	US	9997369	15/277431	9/27/2016	6/12/2018
YOR920160989US1	US	9620590	15/270109	9/20/2016	4/11/2017
YOR920160989US2	US	10249738	15/355521	11/18/2016	4/2/2019
YOR920161069US03	US	10224326	15/608545	5/30/2017	3/5/2019
YOR920161069US1	US	9741823	15/336886	10/28/2016	8/22/2017
YOR920161069US2	US	10242981	15/445107	2/28/2017	3/26/2019
YOR920161133US1	US	9917060	15/331331	10/21/2016	3/13/2018
YOR920161133US2	US	10115824	15/474147	3/30/2017	10/30/2018

YOR920161173US1	US	9660028	15/339665	10/31/2016	5/23/2017
YOR920161173US2	US	10354921	15/463155	3/20/2017	7/16/2019
YOR920161181US02	US	10381338	15/604090	5/24/2017	8/13/2019
YOR920161181US1	US	9735029	15/273092	9/22/2016	8/15/2017
YOR920161206US1	US	10164179	15/405555	1/13/2017	12/25/2018
YOR920161292US02	US	10164007	15/591278	5/10/2017	12/25/2018
YOR920161292US1	US	9941352	15/285728	10/5/2016	4/10/2018
YOR920161315US1	US	9953865	15/335122	10/26/2016	4/24/2018
YOR920161323US03	US	10411106	15/485886	4/12/2017	9/10/2019
YOR920161323US1	US	9721897	15/276985	9/27/2016	8/1/2017
YOR920161323US2	US	10396172	15/431944	2/14/2017	8/27/2019
YOR920161562US02	US	10373867	15/801933	11/2/2017	8/6/2019
YOR920161562US1	US	10177030	15/403667	1/11/2017	1/8/2019
YOR920161742US02	US	9917152	15/701894	9/12/2017	3/13/2018
YOR920161742US03	US	10347719	16/028495	7/6/2018	7/9/2019
YOR920161742US1	US	10050107	15/430764	2/13/2017	8/14/2018
YOR920161885US1	US	9966337	15/459684	3/15/2017	5/8/2018
BUR920050138US1	US	7563714	11/275542	1/13/2006	7/21/2009
BUR920050138US2	US	7851923	12/410728	3/25/2009	12/14/2010
FIS920130290US1	US	9318384	14/223282	3/24/2014	4/19/2016
FIS920130290US2	US	9362170	14/510606	10/9/2014	6/7/2016
FIS920140061US1	US	9536879	14/326745	7/9/2014	1/3/2017
FIS920140061US2	US	9443854	14/920938	10/23/2015	9/13/2016
FIS920140061US3	US	9673197	15/210991	7/15/2016	6/6/2017
FIS920140198US1	US	9412667	14/553521	11/25/2014	8/9/2016
FIS920140198US10	US	9859122	15/406096	1/13/2017	1/2/2018
FIS920140198US11	US	9922831	15/450508	3/6/2017	3/20/2018
FIS920140198US12	US	10381452	15/797315	10/30/2017	8/13/2019
FIS920140198US13	US	10367072	15/790604	10/23/2017	7/30/2019
FIS920140198US14	US	10374048	15/813314	11/15/2017	8/6/2019
FIS920140198US2	US	9837319	15/076036	3/21/2016	12/5/2017
FIS920140198US3	US	9543213	15/076021	3/21/2016	1/10/2017
FIS920140198US4	US	9721843	15/076012	3/21/2016	8/1/2017
FIS920140198US5	US	9570354	15/075960	3/21/2016	2/14/2017
FIS920140198US6	US	9559010	15/075944	3/21/2016	1/31/2017
FIS920140198US7	US	9685379	15/159255	5/19/2016	6/20/2017
FIS920140198US8	US	9768071	15/159259	5/19/2016	9/19/2017
FIS920140198US9	US	9577061	15/159269	5/19/2016	2/21/2017
FIS920140211US1	US	9711452	14/561514	12/5/2014	7/18/2017
FIS920140211US2	US	9685407	15/260675	9/9/2016	6/20/2017
FIS920140211US3	US	9768116	15/260679	9/9/2016	9/19/2017
FIS920150014US1	US	9601378	14/739008	6/15/2015	3/21/2017

FIS920150014US2	US	10504786	15/463972	3/20/2017	12/10/2019
FIS920150014US3	US	10249536	15/464007	3/20/2017	4/2/2019
FIS920150014US4	US	10037916	15/464028	3/20/2017	7/31/2018
FIS920150050US1	US	9418934	14/754999	6/30/2015	8/16/2016
FIS920150168US02	US	10211319	15/633934	6/27/2017	2/19/2019
FIS920150168US03	US	10211321	15/835906	12/8/2017	2/19/2019
FIS920150168US1	US	9741856	14/956711	12/2/2015	8/22/2017
JP920170034US1	US	10325839	15/480750	4/6/2017	6/18/2019
*ROC920080355US1	US	8293578	12/911879	10/26/2010	10/23/2012
ROC920080355US2	US	8736068	13/422606	3/16/2012	5/27/2014
YOR820161893US01	US	10243061	15/814376	11/15/2017	3/26/2019
YOR820161925US01	US	10229971	15/815061	11/16/2017	3/12/2019
YOR820162134US01	US	10229854	15/841933	12/14/2017	3/12/2019
YOR920070226US3	US	9263391	13/089958	4/19/2011	2/16/2016
YOR920070226US4	US	9305882	13/083550	4/9/2011	4/5/2016
YOR920070226US6	US	9613851	14/846800	9/6/2015	4/4/2017
YOR920070226US7	US	10192781	15/055451	2/26/2016	1/29/2019
YOR920070226US8	US	9673087	14/846801	9/6/2015	6/6/2017
YOR920130857US2	US	9391173	14/583454	12/26/2014	7/12/2016
YOR920130857US3	US	9576806	15/183034	6/15/2016	2/21/2017
YOR920130857US4	US	9741807	15/359929	11/23/2016	8/22/2017
YOR920140294US1	US	9390980	14/666520	3/24/2015	7/12/2016
YOR920140294US2	US	9570563	15/181680	6/14/2016	2/14/2017
YOR920150209US2	US	9646881	15/157891	5/18/2016	5/9/2017
YOR920150209US3	US	9653395	15/157906	5/18/2016	5/16/2017
YOR920150209US4	US	10128185	15/430667	2/13/2017	11/13/2018
YOR920150209US5	US	10236252	15/430672	2/13/2017	3/19/2019
YOR920150347US1	US	9583624	14/865276	9/25/2015	2/28/2017
YOR920150347US2	US	9553173	14/962082	12/8/2015	1/24/2017
YOR920150588US02	US	10374035	15/642690	7/6/2017	8/6/2019
YOR920150588US03	US	10312323	15/651420	7/17/2017	6/4/2019
YOR920150588US1	US	9741792	14/919451	10/21/2015	8/22/2017
YOR920150606US02	US	10056254	15/467279	3/23/2017	8/21/2018
YOR920150606US1	US	10038053	14/880362	10/12/2015	7/31/2018
YOR920150615US03	US	10332796	15/634307	6/27/2017	6/25/2019
YOR920150615US04	US	10269644	15/680697	8/18/2017	4/23/2019
YOR920150615US1	US	9786563	14/948745	11/23/2015	10/10/2017
YOR920150615US2	US	9780091	15/345595	11/8/2016	10/3/2017
YOR920150694US1	US	10177240	14/858628	9/18/2015	1/8/2019
YOR920150694US2	US	10381458	14/951593	11/25/2015	8/13/2019
YOR920151401US04	US	9985117	15/588969	5/8/2017	5/29/2018
YOR920151401US05	US	10096698	15/928563	3/22/2018	10/9/2018

YOR920151401US1	US	9601514	15/006284	1/26/2016	3/21/2017
YOR920151401US2	US	9716046	15/254573	9/1/2016	7/25/2017
YOR920151401US3	US	10056255	15/464817	3/21/2017	8/21/2018
YOR920160014US03	US	10083839	15/647689	7/12/2017	9/25/2018
YOR920160014US1	US	9852917	15/077538	3/22/2016	12/26/2017
YOR920160014US2	US	10312104	15/482245	4/7/2017	6/4/2019
YOR920160162US1	US	9728466	15/140763	4/28/2016	8/8/2017
YOR920160162US2	US	9859384	15/431807	2/14/2017	1/2/2018
YOR920160560US1	US	10170584	15/417312	1/27/2017	1/1/2019
YOR920160793US02	US	10332802	15/795975	10/27/2017	6/25/2019
YOR920160793US03	US	10504793	15/903167	2/23/2018	12/10/2019
YOR920160793US1	US	9972542	15/398232	1/4/2017	5/15/2018
YOR920160903US1	US	10276436	15/229470	8/5/2016	4/30/2019
YOR920160982US1	US	10229851	15/251797	8/30/2016	3/12/2019
YOR920160992US02	US	10242920	16/023687	6/29/2018	3/26/2019
YOR920160992US1	US	10074575	15/629306	6/21/2017	9/11/2018
YOR920161050US02	US	10177235	15/462447	3/17/2017	1/8/2019
YOR920161050US03	US	10312337	15/462372	3/17/2017	6/4/2019
YOR920161050US1	US	9653289	15/268993	9/19/2016	5/16/2017
YOR920161073US03	US	10446647	15/790826	10/23/2017	10/15/2019
YOR920161073US1	US	9818875	15/295546	10/17/2016	11/14/2017
YOR920161073US2	US	10283592	15/440785	2/23/2017	5/7/2019
YOR920161085US04	US	10312370	15/652888	7/18/2017	6/4/2019
YOR920161085US1	US	9773893	15/276029	9/26/2016	9/26/2017
YOR920161085US2	US	10510892	15/395637	12/30/2016	12/17/2019
YOR920161224US02	US	10332961	15/826841	11/30/2017	6/25/2019
YOR920161224US1	US	9923055	15/339283	10/31/2016	3/20/2018
YOR920161244US1	US	9837414	15/338515	10/31/2016	12/5/2017
YOR920161248US02	US	10453843	15/617001	6/8/2017	10/22/2019
YOR920161248US1	US	9748245	15/274269	9/23/2016	8/29/2017
YOR920161287US03	US	10256238	16/038600	7/18/2018	4/9/2019
YOR920161287US1	US	10128239	15/294906	10/17/2016	11/13/2018
YOR920161307US1	US	10032632	15/284862	10/4/2016	7/24/2018
YOR920161563US02	US	10396169	15/846461	12/19/2017	8/27/2019
YOR920161563US03	US	10249539	15/846447	12/19/2017	4/2/2019
YOR920161563US1	US	9935014	15/404469	1/12/2017	4/3/2018
YOR920161610US02	US	10332995	15/695319	9/5/2017	6/25/2019
YOR920161610US03	US	10269957	15/850891	12/21/2017	4/23/2019
YOR920161610US1	US	9935195	15/404904	1/12/2017	4/3/2018
YOR920161616US02	US	10256289	15/805829	11/7/2017	4/9/2019
YOR920161616US1	US	10090378	15/462501	3/17/2017	10/2/2018
YOR920161617US02	US	10410875	15/802634	11/3/2017	9/10/2019

YOR920161617US1	US	10312103	15/445112	2/28/2017	6/4/2019
YOR920161618US1	US	10103022	15/463659	3/20/2017	10/16/2018
YOR920161829US02	US	10242911	15/815173	11/16/2017	3/26/2019
YOR920161829US1	US	9911652	15/472745	3/29/2017	3/6/2018
YOR920161852US02	US	10141313	15/819577	11/21/2017	11/27/2018
YOR920161852US1	US	9865598	15/450725	3/6/2017	1/9/2018
YOR920170044US02	US	10243043	15/811812	11/14/2017	3/26/2019
YOR920170044US1	US	9954058	15/620437	6/12/2017	4/24/2018
YOR920170145US02	US	10242909	15/808193	11/9/2017	3/26/2019
YOR920170145US1	US	10090247	15/585704	5/3/2017	10/2/2018

EXHIBIT A-II

LISTED PATENTS (United States)

IBM Docket Number	Country	Patent Number	Application Number	Filing Date	Issue Date
*FIS920070140US1	US	7585716	11/769150	6/27/2007	9/8/2009
FIS920070140US2	US	7812411	12/554292	9/4/2009	10/12/2010
FIS920080279US1	US	7939369	12/465839	5/14/2009	5/10/2011

* inactive

END OF EXHIBIT A

EXHIBIT C-I

ASSIGNED PATENT APPLICATIONS

US Assigned Patent Applications

IBM Docket Number	Country	Application Number	Filing Date	Published Application Number
*BUR920080285US1	US	61/161111	3/18/2009	
*FIS920130265US2	US	14/828551	8/18/2015	20150357328
FIS920140039US03	US	16/454178	6/27/2019	20190318966
FIS920140131US07	US	16/118998	8/31/2018	20180374748
FIS920140131US08	US	16/657169	10/18/2019	
FIS920140148US03	US	16/662845	10/24/2019	
FIS920140148US2	US	15/450829	3/6/2017	20170178960
FIS920150011US06	US	16/296433	3/8/2019	20190206865

FIS920150117US09	US	16/265110	2/1/2019	20190181049
FIS920150198US03	US	16/459685	7/2/2019	20190326406
FIS920150244US03	US	16/057056	8/7/2018	20180342419
FIS920150267US03	US	16/261305	1/29/2019	20190157388
FIS920150267US04	US	16/399845	4/30/2019	20190259831
FIS920170003US05	US	16/051820	8/1/2018	20180342510
FIS920170003US06	US	16/052526	8/1/2018	20180342511
P201705085US02	US	16/391622	4/23/2019	20190252516
YOR820162685US02	US	16/213618	12/7/2018	20190221477
YOR820162922US01	US	15/842841	12/14/2017	20190189457
YOR820170142US02	US	16/406115	5/8/2019	20190267278
YOR820170167US02	US	16/505063	7/8/2019	20190333824
YOR920130854US08	US	16/056940	8/7/2018	20180350959
*YOR920130854US1	US	61/980292	4/16/2014	
YOR920130973US04	US	16/032213	7/11/2018	20180331039
YOR920140073US04	US	15/897526	2/15/2018	20180174903
YOR920140073US05	US	16/689142	11/20/2019	
YOR920140073US06	US	16/689223	11/20/2019	
YOR920140278US03	US	16/402267	5/3/2019	20190259834
*YOR920140278US1	US	14/547181	11/19/2014	20160141360
YOR920150643US06	US	16/002479	6/7/2018	20180294339
YOR920150643US07	US	16/000371	6/5/2018	20180286958
YOR920150867US2	US	15/222151	7/28/2016	20170148890
YOR920151069US2	US	15/345574	11/8/2016	20170117181
YOR920151318US03	US	16/103085	8/14/2018	20190006463
YOR920151468US02	US	16/042388	7/23/2018	20180331180
YOR920151468US03	US	16/042498	7/23/2018	20180350909
YOR920160079US02	US	15/609672	5/31/2017	20170294382
YOR920160175US04	US	16/002590	6/7/2018	20180294263
YOR920160175US2	US	15/371350	12/7/2016	20170352657
YOR920160420US04	US	16/410178	5/13/2019	20190267279
YOR920160479US06	US	16/234974	12/28/2018	20190139832
YOR920160479US07	US	16/227733	12/20/2018	20190131179
YOR920160487US02	US	16/054394	8/3/2018	20180342512
YOR920160487US03	US	16/054417	8/3/2018	20180350810
YOR920160694US03	US	16/058232	8/8/2018	20180350599
YOR920160694US04	US	16/675630	11/6/2019	
YOR920160705US04	US	16/421587	5/24/2019	20190279931
YOR920160871US02	US	16/238193	1/2/2019	20190140090
YOR920160920US02	US	16/250351	1/17/2019	20190148296
YOR920160989US03	US	16/106359	8/21/2018	20180374930
YOR920161173US03	US	16/114816	8/28/2018	20190013244

YOR920161315US02	US	15/852151	12/22/2017	20180122691
YOR920161315US03	US	15/852176	12/22/2017	20180122692
FIS920140198US15	US	16/440106	6/13/2019	20190296120
JP920170034US02	US	15/850446	12/21/2017	US20180294214A1
JP920170034US03	US	16/352946	3/14/2019	20190214339
*ROC920080355US3	US	13/618656	9/14/2012	20130011968
YOR820161893US02	US	16/252663	1/20/2019	20190157420
YOR820162134US02	US	16/244493	1/10/2019	20190189517
*YOR920070226US1	US	11/855211	9/14/2007	20090072409
*YOR920070226US2	US	11/855280	9/14/2007	20090075470
*YOR920070226US5	US	13/096757	4/28/2011	20110237075
*YOR920130857US1	US	61/982616	4/22/2014	
*YOR920150209US1	US	14/817783	8/4/2015	20170040257
YOR920150588US04	US	16/452251	6/25/2019	20190312104
YOR920151401US06	US	16/014676	6/21/2018	20180315841
YOR920160014US04	US	16/040093	7/19/2018	20180323073
YOR920160560US02	US	15/797648	10/30/2017	20180219083
YOR920160560US03	US	16/684115	11/14/2019	
YOR920160793US04	US	16/681347	11/12/2019	
YOR920160903US02	US	16/014020	6/21/2018	20180315653
YOR920160903US03	US	16/014025	6/21/2018	20180315654
YOR920160982US02	US	16/250561	1/17/2019	20190157146
YOR920161085US03	US	15/629280	6/21/2017	20180090606
YOR920161085US05	US	16/685229	11/15/2019	
YOR920161085US06	US	16/685329	11/15/2019	
YOR920161307US02	US	16/001426	6/6/2018	20180286682
YOR920161307US03	US	16/682588	11/13/2019	
YOR920161610US04	US	16/276118	2/14/2019	US20190181263
YOR920161616US03	US	16/052161	8/1/2018	20180350896
YOR920161617US03	US	16/508691	7/11/2019	US20190333774
YOR920161618US02	US	16/058088	8/8/2018	20180350600
YOR920161829US03	US	16/257221	1/25/2019	20190172748

*inactive

END OF EXHIBIT C