

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT8387866

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
CROCUS TECHNOLOGY SA	01/01/2024
RECEIVING PARTY DATA	
Name:	ALLEGRO MICROSYSTEMS, LLC
Street Address:	955 PERIMETER ROAD
City:	MANCHESTER
State/Country:	NEW HAMPSHIRE
Postal Code:	03103-3353
PROPERTY NUMBERS Total: 173	
Property Type	Number
Patent Number:	7986548
Patent Number:	7539045
Patent Number:	7251156
Patent Number:	8014192
Patent Number:	7485976
Patent Number:	7224634
Patent Number:	7568082
Patent Number:	7685438
Patent Number:	7277317
Patent Number:	7712147
Patent Number:	8261367
Patent Number:	7382664
Patent Number:	7529987
Patent Number:	7263018
Patent Number:	7474547
Patent Number:	7791920
Patent Number:	7468905
Patent Number:	7355882
Patent Number:	7382642
Patent Number:	7286392

Property Type	Number
Patent Number:	7359233
Patent Number:	7733729
Patent Number:	8134881
Patent Number:	8120003
Application Number:	60828438
Patent Number:	7518897
Patent Number:	7791917
Patent Number:	7894228
Patent Number:	7957181
Patent Number:	7898833
Patent Number:	8102701
Patent Number:	8228716
Application Number:	61043038
Patent Number:	8169815
Patent Number:	8064245
Patent Number:	8031519
Patent Number:	8228703
Patent Number:	8289765
Patent Number:	8391053
Patent Number:	8385107
Patent Number:	8218349
Patent Number:	8228702
Patent Number:	8273582
Patent Number:	8409880
Patent Number:	8652856
Patent Number:	8824202
Patent Number:	9679626
Patent Number:	8102703
Patent Number:	8830733
Application Number:	61260527
Patent Number:	8907390
Patent Number:	8542525
Patent Number:	8441844
Patent Number:	8411500
Patent Number:	8717812
Patent Number:	8630112
Patent Number:	8947921
Patent Number:	9218879

Property Type	Number
Patent Number:	8717794
Patent Number:	8962493
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Patent Number:	9401208
Patent Number:	9548094
Patent Number:	9342294
Patent Number:	8503225
Patent Number:	8576615
Patent Number:	8488372
Patent Number:	8514618
Patent Number:	8971526
Patent Number:	8587079
Patent Number:	10002973
Patent Number:	8611140
Patent Number:	8611141
Application Number:	13622513
Patent Number:	9165626
Patent Number:	8902643
Patent Number:	8885397
Patent Number:	8743597
Patent Number:	8988935
Patent Number:	8971102
Patent Number:	8797793
Patent Number:	8885379
Patent Number:	8933750
Patent Number:	9228855
Patent Number:	9267816
Patent Number:	9395209
Patent Number:	9310223
Patent Number:	9395210
Patent Number:	9396782
Patent Number:	9331268
Patent Number:	9583695

Property Type	Number
Patent Number:	9324936
Patent Number:	9461093
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Patent Number:	9689936
Patent Number:	9766305
Patent Number:	10401442
Patent Number:	9720057
Patent Number:	10345091
Patent Number:	9841266
Patent Number:	9905283
Patent Number:	9978434
Application Number:	62059337
Patent Number:	10062833
Patent Number:	10712399

Property Type	Number
Patent Number:	10330749
Patent Number:	9995798
Patent Number:	10191719
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Patent Number:	10157652
Patent Number:	10115445
Patent Number:	10665774
Patent Number:	10326421
Patent Number:	10460779
Patent Number:	10663537
Application Number:	62537519
Patent Number:	11017828
Application Number:	16982099
Application Number:	62776024
Patent Number:	11468250
Patent Number:	11860250
Patent Number:	11747411
Patent Number:	11397863
Patent Number:	10914795
Application Number:	17440908
Patent Number:	11852700
Application Number:	17597195
Application Number:	17597352
Application Number:	17760109
Application Number:	62983809
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Application Number:	62983812
Application Number:	17905278
Application Number:	17905352
Application Number:	17998984
Application Number:	17999578
Application Number:	18245380
Application Number:	18251296
Application Number:	18256494
Application Number:	18555075
Application Number:	18551098

Property Type	Number
Application Number:	18553000

CORRESPONDENCE DATA

Fax Number: (781)401-9966

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.

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Email: jlm@dc-m.com

Correspondent Name: DALY, CROWLEY, MOFFORD & DURKEE, LLP

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Address Line 2: SUITE 201B

Address Line 4: WESTWOOD, MASSACHUSETTS 02090

ATTORNEY DOCKET NUMBER:	SA TO AML U.S. CASES
NAME OF SUBMITTER:	PAUL D. DURKEE
SIGNATURE:	/Paul D. Durkee/
DATE SIGNED:	01/18/2024

Total Attachments: 53

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CONFIRMATORY INTELLECTUAL PROPERTY ASSIGNMENT

This CONFIRMATORY INTELLECTUAL PROPERTY ASSIGNMENT (this "Assignment") is made and entered into effective as of January 1, 2024 at 4:00 p.m. Central European Time (being 10:00 a.m. Eastern Standard Time) (the "Effective Time") by and between:

Crocus Technology, a French *Société par Actions Simplifiée*, having its registered office located at 3 Avenue Doyen Louis Weil 6ème étage, 38000 Grenoble, France, and registered under number 453 278 475 RCS Grenoble, France ("Assignor"); and

Allegro MicroSystems, LLC, a Delaware corporation, having its registered office located at 251 Little Falls Drive, Wilmington, Delaware, 19808, U.S.A., and registered with the Secretary of State of the State of Delaware, U.S.A. under file number 2235640 ("Assignee").

Assignor and Assignee are collectively referred to as the "Parties," and each individually as a "Party". Capitalized terms used but not defined in this Assignment shall have the respective meanings ascribed to them in that certain Agreement for the Transfer of a Going Concern (*Contrat de Cession de Fonds de Commerce*) by and between the Assignor and Assignee, effective as of the Effective Time (the "Agreement").

RECITALS

WHEREAS, pursuant to the terms and subject to the conditions of the Agreement, Assignor sold and delivered to Assignee, and Assignee purchased from Assignor, all of the rights, title, and interest in and to certain intellectual property (the "Assigned IP"), effective as of the Effective Time, including without limitation the patents set forth on Schedule A attached hereto (the "Assigned Patents"); and

WHEREAS, in furtherance of the transactions contemplated by the Agreement, and in accordance with Section 12.5 thereof, Assignor desires to confirm the assignment to Assignee, and Assignee desires to confirm its acquisition from Assignor, of all of Assignor's rights, title, and interest in and to the Assigned IP.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and as more fully set forth in the Agreement and subject to the terms and conditions therein, the Parties, intending to be legally bound, hereby agree as follows:

1. Assignor hereby confirms that, pursuant to the Agreement, it has irrevocably and conclusively assigned, conveyed, delivered, and transferred to Assignee all of Assignor's rights, title and interest in and to, on a worldwide basis, (i) the Assigned IP, together with all goodwill associated therewith, in each case to be held and enjoyed by Assignee for its own use and enjoyment as fully and entirely as the same would have been held and enjoyed by Assignor if this assignment and sale had not been made, and (ii) all rights to sue, claim and recover for past, present and future infringement or other violations of any Assigned IP.

2. Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States, whose duty is to issue patent and/or trademark registrations, to issue the same to Assignee, its successors, assigns and legal representatives, or to such nominees as Assignee may designate. Assignor hereby requests the Commissioner of Patents and Trademarks of the United States to record this Assignment in connection with the Assigned IP referenced herein.

3. Assignor agrees to sign all necessary papers and perform all lawful acts reasonably requested by Assignee to give effect to and record the assignment to Assignee under this Assignment, without further compensation, but at the sole cost and expense of Assignee or its successors and assigns.

4. Assignor hereby constitutes and appoints Assignee as Assignor's true and lawful agent and attorney-in-fact, with full power of substitution and resubstitution, in whole or in part, in the name and stead of Assignor but on behalf and for the benefit of Assignee and its successors and assigns, to demand, receive and collect any and all of the Assigned IP and to give receipts and releases for and in respect of the same, and from time to time to institute and prosecute in Assignor's name, or otherwise for the benefit of Assignee and its successors and assigns, any and all proceedings at law, in equity or otherwise, which Assignee or its successors or assigns may deem proper for the collection or recovery of any of the Assigned IP or for the collection and enforcement of any claim or right of any kind regarding the Assigned IP, and to take any other actions and make, sign, execute, acknowledge and deliver any documents and instruments as may from time to time be necessary or appropriate to assign to Assignee and its successors and assigns the Assigned IP. Assignor declares that the foregoing powers are coupled with an interest and are and will be irrevocable by such Assignor or by its dissolution or in any manner or for any reason whatsoever. Nothing in this paragraph will be deemed a waiver of any remedies otherwise available.

5. This Assignment is being executed and delivered pursuant to, and is subject to and shall be governed by the terms and conditions of, the Agreement. Nothing in this Assignment is intended to or shall be deemed to amend, modify, supplement, or limit in any manner any of the representations, warranties, covenants, agreements, rights, or obligations of Assignor and Assignee under the Agreement. In the event of any conflict between the terms and conditions of this Assignment and the terms and conditions of the Agreement, the terms and conditions of the Agreement shall control. Seller shall have no liability hereunder.

6. This Assignment shall be governed by and construed in accordance with the law of the State of Delaware, U.S.A., without regard to the conflicts of law rules of such state. This Assignment is binding upon, and inures to the benefit of, the Parties and their respective successors and assigns. No waiver, modification or amendment of any provision of this Assignment shall be valid unless in writing and signed by the Party against whom such claimed waiver, modification or amendment is sought to be enforced.

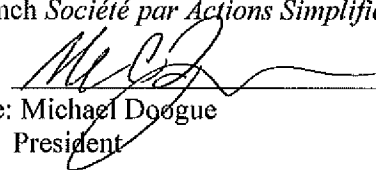
7. This Assignment may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement.

(Signature pages follow)

IN WITNESS WHEREOF, the Parties have duly executed this Assignment effective as of the Effective Time.

CROCUS TECHNOLOGY

a French *Société par Actions Simplifiée*

By: 

Name: Michael Doogue

Title: President

(Signature page to Confirmatory Intellectual Property Assignment)

415182410

IN WITNESS WHEREOF, the Parties have duly executed this Assignment effective as of the Effective Time.

ALLEGRO MICROSYSTEMS, LLC
a Delaware limited liability company

By: 
Name: Michael Doogue
Title: Sr. Vice President and CTO

(Signature page to Confirmatory Intellectual Property Assignment)

415182410

PATENT
REEL: 066350 FRAME: 0679

SCHEDULE A**ASSIGNED PATENTS****Patents registered within the United States:**

USPTO Title	Filing Date	US App. No.	Issue Date	US Pat. No.
Current re-routing scheme for serial-programmed MRAM	5/24/2005	10/536,271	7/26/2011	7,986,548
Method and device for improved magnetic field generation during a write operation of a magnetoresistive memory device	5/25/2005	10/536,293	5/26/2009	7,539,045
Magnetic memory architecture with shared current line	5/25/2005	10/536,292	7/31/2007	7,251,156
Method and device to detect the likely onset of thermal relaxation in magnetic data storage devices	5/25/2005	10/536,291	9/6/2011	8,014,192
Tamper resistant packaging and approach	6/10/2005	10/538,454	2/3/2009	7,485,976
Hardware security device for magnetic memory cells	1/18/2005	10/539,795	5/29/2007	7,224,634
Memory controller and method for writing to a memory	6/30/2003	10/541,266	7/28/2009	7,568,082
Tamper-resistant packaging and approach using magnetically-set data	10/23/2006	10/541,884	3/23/2010	7,685,438
MRAM architecture for low power consumption and high selectivity	6/26/2005	10/543,396	10/2/2007	7,277,317
METHOD AND DEVICE FOR PROTECTION OF AN MRAM DEVICE AGAINST TAMPERING	6/16/2005	10/539,548	5/4/2010	7,712,147
Method and device for protection of an MRAM device against tampering	2/19/2010	12/708,874	9/4/2012	8,261,367
Simultaneous reading from and writing to different memory cells	9/19/2005	10/549,559	1/3/2008	7,382,664
Integrity control for data stored in a non-volatile memory	12/1/2005	10/559,174	5/5/2009	7,529,987
Compensating a long read time of a memory device in data comparison and write operations	1/19/2006	10/565,149	8/28/2007	7,263,018
Active shielding for a circuit comprising magnetically sensitive materials	2/28/2006	10/570,174	1/6/2009	7,474,547
Active shielding for a circuit comprising magnetically sensitive materials	11/25/2008	12/277,537	9/7/2010	7,791,920
Magnetic field shaping conductor	3/30/2006	10/574,365	12/23/2008	7,468,905
Method and device for performing active field compensation during programming of a magnetoresistive memory device	5/19/2006	10/579,933	4/8/2008	7,355,882
Method and device for preventing erroneous programming of a magnetoresistive memory element	6/2/2005	10/579,935	6/3/2008	7,382,642

PATENT**REEL: 066350 FRAME: 0680**

Data retention indicator for magnetic memories	6/2/2005	10/579,934	10/23/2007	7,286,392
Non-homogeneous shielding of an MRAM chip with magnetic field sensor	6/2/2005	10/579,929	4/15/2008	7,359,233
Thermally stable reference voltage generator for MRAM	10/13/2005	11/547,336	6/8/2010	7,733,729
Thermally stable reference voltage generator for MRAM	4/23/2010	12/765,897	3/13/2012	8,134,881
Nanowire magnetic random access memory	4/5/2007	12/088,724	2/21/2012	8,120,003
System and Method for providing content-addressable Magnetoresistive Random Access Memory cells	10/6/2006	60/828,438		
System and Method for providing content-addressable Magnetoresistive Random Access Memory cells	10/9/2007	11/869,632	4/14/2009	7,518,897
System and Method for providing content-addressable Magnetoresistive Random Access Memory cells	1/5/2009	12/348,830	9/7/2010	7,791,917
System and Method for providing content-addressable Magnetoresistive Random Access Memory cells	4/13/2009	12/422,752	2/22/2011	7,894,228
Magnetic tunnel junction magnetic memory	3/31/2008	12/059,869	6/7/2011	7,957,181
Magnetic element with thermally-assisted writing	8/13/2008	12/269,918	3/1/2011	7,898,833
Magnetic memory with a thermally assisted writing procedure	6/11/2010	12/813,549	1/24/2012	8,102,701
Magnetic element with thermally assisted writing	8/31/2010	12/872,873	7/24/2012	8,228,716
System and Method for Writing Data to Magnetoresistive Random Access memory Cells	4/7/2008	61/043,038		
System and Method for Writing Data to Magnetoresistive Random Access memory Cells	4/6/2009	12/418,747	5/1/2012	8,169,815
Magnetic Random Access Memory with an Elliptical Junction	5/15/2009	12/467,171	11/22/2011	8,064,245
Shared Line Magnetic Random Access Memory Cells	6/16/2009	12/485,359	10/4/2011	8,031,519
Ternary content addressable magnetoresistive random access memory cell	10/30/2009	12/609,602	7/24/2012	8,228,703
Active strap magnetic random access memory cells configured to perform thermally-assisted writing	2/19/2010	12/708,584	10/16/2012	8,289,765
Magnetic memory with a thermally assisted writing procedure and reduced writing field	5/4/2010	12/773,072	3/5/2013	8,391,053
Magnetic memory with a thermally assisted spin transfer torque writing procedure using a low writing current	5/4/2010	12/773,318	2/26/2013	8,385,107
Non volatile logic devices using magnetic tunnel junctions	5/21/2010	12/784,848	7/10/2012	8,218,349

Ultimate magnetic random access memory-based ternary CAM	6/23/2010	12/821,284	7/24/2012	8,228,702
Method for use in making electronic devices having thin-film magnetic components	7/9/2009	12/500,573	9/25/2012	8,273,582
Method for use in making electronic devices having thin-film magnetic components	5/10/2012	13/468,936	4/2/2013	8,409,880
Method for use in making electronic devices having thin-film magnetic components	3/21/2013	13/848,641	2/18/2014	8,652,856
Self-Referenced Magnetic Random Access Memory Cell	7/8/2010	12/832,472	9/2/2014	8,824,202
Self-Referenced Magnetic Random Access Memory Cell	7/3/2014	14/294,239	6/13/2017	9,679,626
Magnetic element with a fast spin transfer torque writing procedure	7/14/2009	12/502,467	1/24/2012	8,102,703
Circuit for generating adjustable timing signals for sensing a self-referenced MRAM cell	9/23/2010	12/888,643	9/9/2014	8,830,733
A Magnetic Tunnel Junction Structure	11/12/2009	61/260,527		
A Magnetic Tunnel Junction Structure	11/11/2010	12/944,663	12/9/2014	8,907,390
MRAM-based Memory Device with Rotated Gate	3/2/2011	13/038,473	9/24/2013	8,542,525
Method for writing in a MRAM-based memory device with reduced power consumption	6/8/2011	13/155,669	5/14/2013	8,441,844
Magnetic device with optimized heat confinement	6/7/2011	13/154,912	4/2/2013	8,411,500
Thermally Assisted Magnetic Random Access Memory Element with Improved Endurance	10/26/2011	13/281,525	5/6/2014	8,717,812
Multi level magnetic element	10/26/2011	13/281,507	1/14/2014	8,630,112
Multi level magnetic element	1/14/2014	14/154,405	2/3/2015	8,947,921
Apparatus, system, and method for matching patterns with an ultra fast check engine based on flash cells	12/1/2011	13/309,475	12/22/2015	9,218,879
Apparatus, system, and method for matching patterns with an ultra fast check engine	12/1/2011	13/309,369	5/6/2014	8,717,794
Magnetic random access memory cells having improved size and shape characteristics	12/13/2010	12/966,865	2/24/2015	8,962,493
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	12/15/2011	13/326,439	2/25/2014	8,659,938
Magnetic tunnel junction comprising a polarizing layer	1/12/2012	13/348,996	12/17/2013	8,609,439
Low Power Magnetic Random Access Memory Cell	1/18/2012	13/352,706	2/6/2018	9,886,989

Memory devices with series-interconnected magnetic random access memory cells	2/8/2011	13/023,441	1/7/2014	8,625,336
Magnetic random access memory devices configured for self-referenced read operation	2/8/2011	13/023,442	6/18/2013	8,467,234
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	3/27/2012	13/430,963	4/14/2015	9,007,807
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	3/23/2015	14/665,459	7/26/2016	9,401,208
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	6/23/2016	15/190,499	1/17/2017	9,548,094
Information Processing Device Comprising a Read-only Memory and a Method for Patching the Read-only Memory	5/10/2012	13/468,144	5/17/2016	9,342,294
Multibit cell with synthetic storage layer	5/18/2012	13/475,215	8/6/2013	8,503,225
Magnetic random access memory devices including multi-bit cells	6/10/2011	13/518,312	11/5/2013	8,576,615
Magnetic random access memory devices including multi-bit cells	6/10/2011	13/158,316	7/16/2013	8,488,372
Magnetic Random Access Memory Cell with Improved Dispersion of the Switching Field	7/10/2012	13/545,303	8/20/2013	8,514,618
A METHOD OF COUNTER-MEASURING AGAINST SIDE-CHANNEL ATTACKS	7/12/2012	13/547,098	3/3/2015	8,971,526
Memory array including magnetic random access memory cells and oblique field lines	8/10/2012	13/572,566	11/19/2013	8,587,079
Magnetic Tunnel Junction with an Improved Tunnel Barrier	9/5/2012	13/604,035	6/19/2018	10,002,973
Magnetic random access memory devices including shared heating straps	9/21/2011	13/329,162	12/17/2013	8,611,140
Magnetic random access memory devices including heating straps	9/21/2011	13/329,168	12/17/2013	8,611,141
Magnetic Random Access Memory (MRAM) Cell and Method for Reading the MRAM Cell Using a Self-Referenced Read Operation	9/19/2012	13/622,513		
Self-Reference Magnetic Random Access Memory (MRAM) Cell comprising Ferromagnetic Layers	9/25/2012	13/625,923	10/20/2015	9,165,626
Apparatus, system, and method for writing multiple magnetic random access memory cells with a single field line	10/9/2012	13/648,221	12/2/2014	8,902,643
Self-referenced MRAM cell with optimized reliability	11/21/2012	13/683,239	11/11/2014	8,885,397

Self-Referenced Magnetic Random Access Memory Element comprising a Synthetic Storage Layer	12/12/2012	13/711,820	6/3/2014	8,743,597
Self-referenced MRAM cell and method for writing the cell using a spin transfer torque write operation	12/19/2012	13/720,232	3/24/2015	8,988,935
MRAM Cell and Method for Writing to the MRAM Cell using a Thermally Assisted Write Operation with a Reduced Field Current	1/11/2013	13/739,044	3/3/2015	8,971,102
Self-Referenced MRAM Element with Linear Sensing Signal	2/7/2013	13/761,292	8/5/2014	8,797,793
High Speed Magnetic Random Access Memory-based Ternary CAM	2/11/2013	13/764,139	11/11/2014	8,885,379
Magnetic logic units configured as an amplifier	2/15/2013	13/769,156	1/13/2015	8,933,750
Magnetic logic units configured to measure magnetic field direction	3/6/2013	13/787,585	1/5/2016	9,228,855
Magnetic logic units configured to measure magnetic field direction	11/24/2014	14/552,302	2/23/2016	9,267,816
Magnetic logic units configured to measure magnetic field direction	11/24/2014	14/552,326	6/19/2016	9,395,209
Magnetic logic units configured to measure magnetic field direction	11/24/2014	14/552,338	4/12/2016	9,310,223
Magnetic logic units configured to measure magnetic field direction	11/24/2014	14/552,363	7/19/2016	9,395,210
Method for writing to a Random Access Memory (MRAM) Cell with improved MRAM Cell Lifespan	6/7/2013	14/405,909	7/19/2016	9,396,782
MRAM element having improved data retention and low writing	6/7/2013	14/405,918	5/3/2016	9,331,268
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	3/25/2015	14/431,125	2/28/2017	9,583,695
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	3/25/2015	14/431,140	4/26/2016	9,324,936
Self-Referenced MRAM Element and Device having improved Magnetic Field	4/21/2015	14/437,362	10/4/2016	9,461,093
Memory devices with magnetic random access memory (MRAM) cells and associated structures for connecting the MRAM cells	10/22/2012	13/657,708	8/26/2014	8,816,455
Memory devices with magnetic random access memory (MRAM) cells and associated structures for connecting the MRAM cells	8/25/2014	14/468,234	6/9/2015	9,054,029
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	4/24/2015	14/438,365	9/5/2017	9,754,653
Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	5/27/2015	14/647,600	6/13/2017	9,679,624
Magnetoresistive element having enhanced exchange for spintronic devices	5/27/2015	14/647,632	8/30/2016	9,431,601

Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	6/4/2015	14/649,591	4/5/2016	9,305,628
MRAM element with low writing temperature	7/21/2015	14/762,264	5/10/2016	9,336,846
Self-referenced MRAM cell that can be read with reduced power consumption	9/4/2015	14/772,916	4/11/2017	9,620,187
Magnetic random access memory cells with isolating liners	3/10/2014	14/203,362	6/16/2015	9,059,400
TA-MRAM cells with improved reliability at writing	10/29/2015	14/787,957	8/8/2017	9,728,711
Self-referenced memory with Spin-Orbit Torque reading or writing scheme	3/17/2016	15/022,766	11/14/2017	9,818,465
Method for measuring three-dimensional magnetic fields	4/8/2016	15/028,103	5/29/2018	9,983,275
Tridimensional magnetic sensors	4/8/2016	15/028,114	6/5/2018	9,989,599
Magnetic logic units configured as analog circuit building blocks	1/27/2015	14/606,960	5/24/2016	9,350,359
Analog circuits incorporating magnetic logic units	1/27/2015	14/606,967	11/22/2016	9,503,097
Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility	8/5/2016	15/116,969	1/23/2018	9,875,781
Multibit self-reference thermally assisted MRAM	12/29/2014	14/583,983	8/2/2016	9,406,870
Multibit self-reference thermally assisted MRAM	10/20/2015	14/887,856	10/10/2017	9,786,873
Multibit self-reference thermally assisted MRAM	7/18/2017	15/652,482	3/19/2019	10,236,438
Structure for thermally assisted MRAM	12/29/2014	14/583,997	12/6/2016	9,515,251
Multi-bit MRAM cell and method for writing and reading to such MRAM cell	11/7/2016	15/309,229	10/24/2017	9,799,384
Serial magnetic logic unit architecture	6/5/2015	14/732,561	8/8/2017	9,728,233
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer	12/14/2016	15/318,715	4/17/2018	9,947,381
MLU based accelerometer using a magnetic tunnel junction	1/6/2017	15/324,291	11/6/2018	10,119,988
Apparatus and method for sensing a magnetic field using arrays of magnetic sensing elements	7/16/2015	14/801792	7/11/2017	9,702,944
Apparatus and method for sensing a magnetic field using subarrays of magnetic sensing elements	7/16/2015	14/801,797	6/27/2017	9,689,936
Apparatus and method for layout of magnetic field sensing elements in sensors	7/16/2015	14/801,800	9/19/2017	9,766,305

Apparatus, system, and method for sensing communication signals with magnetic field sensing elements	7/16/2015	14/801,802	9/2/2019	10,401,442
Apparatus and method for sensing a magnetic field using subarrays of magnetic field sensing elements for high voltage applications	7/16/2015	14/801,794	8/1/2017	9,720,057
Apparatus and method for magnetic sensor based surface shape analysis	9/18/2015	14/859,117	7/9/2019	10,345,091
Apparatus and method for magnetic sensor based surface shape analysis spatial positioning in a uniform magnetic field	9/23/2015	14/863,121	12/12/2017	9,841,266
Self-referenced MRAM cell and magnetic field sensor comprising the self-referenced MRAM cell	3/31/2017	15/516,098	2/27/2018	9,905,283
Method for writing in a magnetic device having a plurality of magnetic logical unit cells using a single programming current	3/31/2017	15/516,085	5/22/2018	9,978,434
Electrical interconnecting device for MRAM-based magnetic devices	10/3/2014	62/059,337		
Electrical interconnecting device for MRAM-based magnetic devices	3/31/2017	15/516,079	8/28/2018	10,062,833
MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	5/18/2017	15/527,766	7/14/2020	10,712,399
Magnetic logic unit (MLU) cell for sensing magnetic fields with improved programmability and low reading consumption	7/14/2017	15/543,619	6/25/2019	10,330,749
MLU based magnetic sensor having improved programmability and	7/14/2017	15/543,614	7/12/2018	9,995,798
MRAM-based programmable magnetic device for generating random numbers	8/22/2017	15/552,508	1/29/2019	10,191,719
Thermally assisted MRAM including magnetic tunnel junction and vacuum cavity	3/24/2015	14/666,363	4/26/2016	9,324,937
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same	10/10/2017	15/565,505	10/30/2018	10,115,447
MRAM-based pre-distortion linearization and amplification circuits	5/13/2016	15/154,776	1/9/2018	9,866,182
Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	12/1/2017	15/578,841	12/18/2018	10,157,652
Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	1/4/2018	15/741,805	10/30/2018	10,115,445
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising this magnetoresistive element	9/7/2018	16/083,163	5/26/2020	10,665,774

Magnetoresistive-based signal shaping circuit for audio applications	9/13/2018	16/084,637	6/18/2019	10,326,421
MRAM reference cell with shape anisotropy to establish a well-defined magnetization orientation between a reference layer and a storage layer	2/7/2018	15/891,233	10/29/2019	10,460,779
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic	4/7/2017	15/481,805	5/26/2020	10,663,537
Apparatus for generating a magnetic field and method of using said	1/27/2017	62/537,519		
Apparatus for generating a magnetic field and method of using said	1/24/2020	16/633,775	5/25/2021	11,017,828
MLU-BASED MAGNETIC DEVICE HAVING AN AUTHENTICATION AND PHYSICAL UNCLONABLE FUNCTION AND AUTHENTICATION METHOD USING SAID MLU DEVICE	9/18/2020	16/982,099		
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	12/6/2018	62/776,024		
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	6/4/2021	17/299,949	10/11/2022	11,468,250
MAGNETIC ANGULAR SENSOR DEVICE FOR SENSING HIGH MAGNETIC FIELDS WITH LOW ANGULAR ERROR	6/10/2021	17/312,531	1/2/2024	11,860,250
Magnetoresistive-based sensing circuit for two-dimensional sensing of high magnetic fields	6/10/2021	17/312,558	9/5/2023	11,747,411
Magnetic reader sensor device for reading magnetic stripes and method for manufacturing the sensor device	12/23/2019	16/724,482	6/26/2022	11,397,863
Apparatus and method for magnetic sensor output compensation based upon ambient temperature	2/20/2019	16/280,480	2/9/2021	10,914,795
ELECTRONIC CIRCUIT FOR MEASURING AN ANGLE AND AN INTENSITY OF AN EXTERNAL MAGNETIC FIELD	9/20/2021	17/440,908		
MAGNETIC ELEMENT HAVING AN IMPROVED MEASUREMENT RANGE	10/20/2021	17/605,069	12/26/2023	11,852,700
MAGNETIC FIELD SENSOR FOR SENSING A TWO-DIMENSIONAL EXTERNAL MAGNETIC FIELD HAVING A LOW ANISOTROPY FIELD	12/29/2021	17/597,195		
MAGNETIC CURRENT SENSOR COMPRISING A MAGNETORESISTIVE DIFFERENTIAL FULL BRIDGE	1/4/2022	17/597,352		
MAGNETORESISTIVE SENSOR ELEMENT HAVING COMPENSATED TEMPERATURE COEFFICIENT OF SENSITIVITY AND METHOD FOR MANUFACTURING SAID ELEMENT	8/4/2022	17/760,109		

TEMPERATURE COMPENSATED MTJ-BASED SENSING CIRCUIT FOR MEASURING AN EXTERNAL MAGNETIC FIELD	3/2/2020	62/983,809		
TEMPERATURE COMPENSATED MTJ-BASED SENSING CIRCUIT FOR MEASURING AN EXTERNAL MAGNETIC FIELD	8/29/2022	17/905,214		
AGNETIC SENSOR FOR MEASURING AN EXTERNAL MAGNETIC FIELD ANGLE IN A TWO-DIMENSIONAL PLANE AND METHOD FOR MEASURING SAID ANGLE USING THE MAGNETIC SENSOR	3/2/2020	62/983,812		
MAGNETIC SENSOR FOR MEASURING AN EXTERNAL MAGNETIC FIELD ANGLE IN A TWO-DIMENSIONAL PLANE AND METHOD FOR MEASURING SAID ANGLE USING THE MAGNETIC SENSOR	8/30/2022	17/905,278		
MAGNETORESISTIVE SENSOR ELEMENT FOR SENSING A TWO-DIMENSIONAL MAGNETIC FIELD WITH LOW HIGH-FIELD ERROR	8/31/2022	17/905,352		
MAGNETIC SENSOR ELEMENT AND DEVICE HAVING IMPROVED ACCURACY UNDER HIGH MAGNETIC FIELDS	11/16/2022	17/998,984		
MAGNETIC SENSOR COMPRISING MAGNETORESISTIVE ELEMENTS AND SYSTEM FOR PROGRAMMING SUCH MAGNETIC SENSOR	11/22/2022	17/999,578		
MAGNETORESISTIVE ELEMENT FOR A 2D MAGNETIC SENSOR HAVING A REDUCED HYSTERESIS RESPONSE	3/15/2023	18/245,380		
MAGNETORESISTIVE SENSOR ELEMENT HAVING A WIDE LINEAR RESPONSE AND ROBUST NOMINAL PERFORMANCE AND MANUFACTURING METHOD THEREOF	5/1/2023	18/251,296		
AGNETORESISTIVE ELEMENT FOR SENSING A MAGNETIC FIELD IN A Z-AXIS	6/8/2023	18/256,494		
METHOD TO CALCULATE PERFORMANCE OF A MAGNETIC ELEMENT COMPRISING A FERROMAGNETIC LAYER EXCHANGE-COUPLED TO AN ANTIFERROMAGNETIC LAYER	10/12/2023	18/555,075		
Magnetoresistive Element And Magnetic Sensor Device Having A High Sensitivity And Low Zero-Field Offset-Shift	9/28/2023	18/551,098		
Magnetic Sensor Device Having An Improved Measurement Range	9/28/2023	18/553,000		

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Title	Patent No.	Issue Date	Country	Filing Date	Application No.
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Multilevel MRAM for low consumption and reliable write operation			Europe	5/15/2013	2013EP-290108
MRAM Cell having Improved Data Retention, Reduced Writing and Reading Fields			Europe	10/29/2012	2012EP-290374
METHOD AND DEVICE FOR IMPROVED MAGNETIC FIELD GENERATION DURING A WRITE OPERATION OF A MAGNETORESISTIVE MEMORY DEVICE	EP1568040B1	2/27/2013	Europe	11/6/2003	EP20030811818
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METHOD AND DEVICE FOR PROTECTION OF AN MRAM DEVICE AGAINST TAMPERING	EP1576613B1	6/18/2014	Europe	12/15/2003	03778637.3
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Multi level magnetic element	EP2447949	11/30/2016	Europe	10/24/2011	2011EP-186369
Multi level magnetic element			Europe	10/26/2010	2010EP-290579
Multi level magnetic element	EP2447949	11/30/2016	Germany		

Multi level magnetic element	EP2447949	11/30/2016	France		
Multi level magnetic element	EP2447949	11/30/2016	Great Britain		
MAGNETIC RANDOM ACCESS MEMORY CELLS HAVING IMPROVED SIZE AND SHAPE CHARACTERISTICS	EP2652739B1	8/14/2019	Europe	12/12/2011	EP20110849075
MAGNETIC RANDOM ACCESS MEMORY CELLS HAVING IMPROVED SIZE AND SHAPE CHARACTERISTICS	EP2652739B1	8/14/2019	Germany		
MAGNETIC RANDOM ACCESS MEMORY CELLS HAVING IMPROVED SIZE AND SHAPE CHARACTERISTICS	EP2652739B1	8/14/2019	France		
MAGNETIC RANDOM ACCESS MEMORY CELLS HAVING IMPROVED SIZE AND SHAPE CHARACTERISTICS	EP2652739B1	8/14/2019	Great Britain		
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	JP5798025	8/28/2015	Japan	12/15/2011	2010JP-274124
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	EP2466586	3/2/2016	Europe	12/14/2011	2011EP-193528
Multibit Magnetic Random Access Memory Cell with Improved Read Margin			Europe	12/16/2010	2010-EP290662
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	EP2466586	3/2/2016	Germany		
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	EP2466586	3/2/2016	Great Britain		
Multibit Magnetic Random Access Memory Cell with Improved Read Margin	EP2466586	3/2/2016	France		
Magnetic tunnel junction comprising a polarizing layer	JP5903278	3/18/2016	Japan	1/12/2012	2012JP-003704
Magnetic tunnel junction comprising a polarizing layer	EP2477227	3/27/2019	Europe	1/13/2011	2011EP-290013
Magnetic tunnel junction comprising a polarizing layer	EP2477227	3/27/2019	Germany		

Magnetic tunnel junction comprising a polarizing layer	EP2477227	3/27/2019	France		
Magnetic tunnel junction comprising a polarizing layer	EP2477227	3/27/2019	Great Britain		
Low Power Magnetic Random Access Memory Cell			Europe	1/19/2011	2011EP-290031
MAGNETIC RANDOM ACCESS MEMORY DEVICES CONFIGURED FOR SELF-REFERENCED READ OPERATION	EP2673779B1	8/28/2019	Europe	2/2/2012	EP20120744425
MAGNETIC RANDOM ACCESS MEMORY DEVICES CONFIGURED FOR SELF-REFERENCED READ OPERATION	EP2673779B1	8/28/2019	Germany		
MAGNETIC RANDOM ACCESS MEMORY DEVICES CONFIGURED FOR SELF-REFERENCED READ OPERATION	EP2673779B1	8/28/2019	France		
MAGNETIC RANDOM ACCESS MEMORY DEVICES CONFIGURED FOR SELF-REFERENCED READ OPERATION	EP2673779B1	8/28/2019	Great Britain		
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	JP5820319	10/9/2015	Japan	3/27/2012	2012JP-070549
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	EP2506265	6/5/2019	Europe	3/16/2012	2012EP-159962
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications			Europe	3/28/2011	2011EP-290150
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	EP2506265	6/5/2019	France		
Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	EP2506265	6/5/2019	Germany		

Magnetic Random Access Memory Cell with a Dual Junction for Ternary Content Addressable Memory Applications	EP2506265	6/5/2019	Great Britain		
Information Processing Device Comprising a Read-only Memory and a Method for Patching the Read-only Memory	EP2523105	12/4/2019	Europe	5/10/2011	EP20110290219
Information Processing Device Comprising a Read-only Memory and a Method for Patching the Read-only Memory	EP2523105	12/4/2019	Germany		
Information Processing Device Comprising a Read-only Memory and a Method for Patching the Read-only Memory	EP2523105	12/4/2019	France		
Information Processing Device Comprising a Read-only Memory and a Method for Patching the Read-only Memory	EP2523105	12/4/2019	Great Britain		
Multibit cell with synthetic storage layer	JP5879198	2/5/2016	Japan	5/22/2012	2012JP-116154
Multibit cell with synthetic storage layer	EP2528060	12/14/2016	Europe	5/23/2011	2011EP-290239
Multibit cell with synthetic storage layer	EP2528060	12/14/2016	Germany		
Multibit cell with synthetic storage layer	EP2528060	12/14/2016	France		
Multibit cell with synthetic storage layer	EP2528060	12/14/2016	Great Britain		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING MULTI-BIT CELLS	EP2718927B1	7/31/2019	Europe	6/8/2012	EP20120795992
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING MULTI-BIT CELLS	EP2718927B1	7/31/2019	Germany		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING MULTI-BIT CELLS	EP2718927B1	7/31/2019	France		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING MULTI-BIT CELLS	EP2718927B1	7/31/2019	Great Britain		
A METHOD OF COUNTER-MEASURING AGAINST SIDE-CHANNEL ATTACKS	JP5892887	3/4/2016	Japan	7/25/2012	2012JP-164539

A METHOD OF COUNTER-MEASURING AGAINST SIDE-CHANNEL ATTACKS			Europe	7/26/2011	2011EP-290337
MEMORY ARRAY INCLUDING MAGNETIC RANDOM ACCESS MEMORY CELLS AND OBLIQUE FIELD LINES	EP2742507B1	10/5/2016	Europe	8/13/2012	EP20120823484
MEMORY ARRAY INCLUDING MAGNETIC RANDOM ACCESS MEMORY CELLS AND OBLIQUE FIELD LINES	EP2742507B1	10/5/2016	Germany		
MEMORY ARRAY INCLUDING MAGNETIC RANDOM ACCESS MEMORY CELLS AND OBLIQUE FIELD LINES	EP2742507B1	10/5/2016	France		
MEMORY ARRAY INCLUDING MAGNETIC RANDOM ACCESS MEMORY CELLS AND OBLIQUE FIELD LINES	EP2742507B1	10/5/2016	Great Britain		
Magnetic Tunnel Junction with an Improved Tunnel Barrier	EP2568305	3/2/2016	Europe	9/9/2011	2011EP-290402
Magnetic Tunnel Junction with an Improved Tunnel Barrier	EP2568305	3/2/2016	Germany		
Magnetic Tunnel Junction with an Improved Tunnel Barrier	EP2568305	3/2/2016	France		
Magnetic Tunnel Junction with an Improved Tunnel Barrier	EP2568305	3/2/2016	Great Britain		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING HEATING STRAPS	EP2758960B1	11/16/2016	Europe	9/19/2012	EP20120833800
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING HEATING STRAPS	EP2758960B1	11/16/2016	Germany		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING HEATING STRAPS	EP2758960B1	11/16/2016	France		
MAGNETIC RANDOM ACCESS MEMORY DEVICES INCLUDING HEATING STRAPS	EP2758960B1	11/16/2016	Great Britain		
Magnetic Random Access Memory (MRAM) Cell and Method for Reading the MRAM Cell Using a Self-Referenced Read Operation	EP2575135	8/5/2015	Europe	9/28/2011	2011EP-290444

Magnetic Random Access Memory (MRAM) Cell and Method for Reading the MRAM Cell Using a Self-Referenced Read Operation	EP2575135	8/5/2015	Germany		
Magnetic Random Access Memory (MRAM) Cell and Method for Reading the MRAM Cell Using a Self-Referenced Read Operation	EP2575135	8/5/2015	France		
Magnetic Random Access Memory (MRAM) Cell and Method for Reading the MRAM Cell Using a Self-Referenced Read Operation	EP2575135	8/5/2015	Great Britain		
Self-Reference Magnetic Random Access Memory (MRAM) Cell comprising Ferromagnetic Layers	EP2575136	12/24/2014	Europe	9/30/2011	2011EP290456
Self-Reference Magnetic Random Access Memory (MRAM) Cell comprising Ferromagnetic Layers	EP2575136	12/24/2014	Germany		
Self-Reference Magnetic Random Access Memory (MRAM) Cell comprising Ferromagnetic Layers	EP2575136	12/24/2014	France		
Self-Reference Magnetic Random Access Memory (MRAM) Cell comprising Ferromagnetic Layers	EP2575136	12/24/2014	Great Britain		
APPARATUS, SYSTEM, AND METHOD FOR WRITING MULTIPLE MAGNETIC RANDOM ACCESS MEMORY CELLS WITH A SINGLE FIELD LINE	EP2766906B1	3/30/2016	Europe	10/9/2012	EP20120839765
APPARATUS, SYSTEM, AND METHOD FOR WRITING MULTIPLE MAGNETIC RANDOM ACCESS MEMORY CELLS WITH A SINGLE FIELD LINE	EP2766906B1	3/30/2016	Germany		
APPARATUS, SYSTEM, AND METHOD FOR WRITING MULTIPLE MAGNETIC RANDOM ACCESS MEMORY CELLS WITH A SINGLE FIELD LINE	EP2766906B1	3/30/2016	France		

APPARATUS, SYSTEM, AND METHOD FOR WRITING MULTIPLE MAGNETIC RANDOM ACCESS MEMORY CELLS WITH A SINGLE FIELD LINE	EP2766906B1	3/30/2016	Great Britain		
Self-Referenced MRAM Cell with Optimized Reliability	EP2597693	6/7/2017	Europe	11/22/2012	2012EP-007861
Self-Referenced MRAM Cell with Optimized Reliability			Europe	11/22/2011	
Self-Referenced MRAM Cell with Optimized Reliability	EP2597693	6/7/2017	Germany		
Self-Referenced MRAM Cell with Optimized Reliability	EP2597693	6/7/2017	France		
Self-Referenced MRAM Cell with Optimized Reliability	EP2597693	6/7/2017	Great Britain		
Self-Referenced Magnetic Random Access Memory Element comprising a Synthetic Storage Layer	EP2605246	2/11/2015	Europe	12/12/2011	2011EP-290572
Self-Referenced Magnetic Random Access Memory Element comprising a Synthetic Storage Layer	EP2605246	2/11/2015	Germany		
Self-Referenced Magnetic Random Access Memory Element comprising a Synthetic Storage Layer	EP2605246	2/11/2015	Great Britain		
Self-Referenced Magnetic Random Access Memory Element comprising a Synthetic Storage Layer	EP2605246	2/11/2015	France		
Self-referenced MRAM cell and method for writing the cell using a spin transfer torque write operation	EP2608208	2/11/2015	Europe	12/22/2011	2011EP-290591
Self-referenced MRAM cell and method for writing the cell using a spin transfer torque write operation	EP2608208	2/11/2015	Germany		

Self-referenced MRAM cell and method for writing the cell using a spin transfer torque write operation	EP2608208	2/11/2015	Great Britain		
Self-referenced MRAM cell and method for writing the cell using a spin transfer torque write operation	EP2608208	2/11/2015	France		
MRAM Cell and Method for Writing to the MRAM Cell using a Thermally Assisted Write Operation with a Reduced Field Current	EP2615610	11/2/2016	Europe	1/16/2012	2012EP-290019
MRAM Cell and Method for Writing to the MRAM Cell using a Thermally Assisted Write Operation with a Reduced Field Current	EP2615610	11/2/2016	Germany		
MRAM Cell and Method for Writing to the MRAM Cell using a Thermally Assisted Write Operation with a Reduced Field Current	EP2615610	11/2/2016	Great Britain		
MRAM Cell and Method for Writing to the MRAM Cell using a Thermally Assisted Write Operation with a Reduced Field Current	EP2615610	11/2/2016	France		
Self-Referenced MRAM Element with Linear Sensing Signal	EP2626860	11/16/2016	Europe	2/8/2012	2012EP-290043
Self-Referenced MRAM Element with Linear Sensing Signal	EP2626860	11/16/2016	Germany		
Self-Referenced MRAM Element with Linear Sensing Signal	EP2626860	11/16/2016	France		
Self-Referenced MRAM Element with Linear Sensing Signal	EP2626860	11/16/2016	Great Britain		
High Speed Magnetic Random Access Memory-based Ternary CAM	EP2626861	1/7/2015	Europe	2/13/2012	2012EP-290052
High Speed Magnetic Random Access Memory-based Ternary CAM	EP2626861	1/7/2015	Germany		
High Speed Magnetic Random Access Memory-based Ternary CAM	EP2626861	1/7/2015	France		

High Speed Magnetic Random Access Memory-based Ternary CAM	EP2626861	1/7/2015	Great Britain		
MAGNETIC LOGIC UNITS CONFIGURED AS AN AMPLIFIER	EP2815401B1	4/4/2018	Europe	2/15/2013	EP20130749177
MAGNETIC LOGIC UNITS CONFIGURED AS AN AMPLIFIER	EP2815401B1	4/4/2018	Germany		
MAGNETIC LOGIC UNITS CONFIGURED AS AN AMPLIFIER	EP2815401B1	4/4/2018	France		
MAGNETIC LOGIC UNITS CONFIGURED AS AN AMPLIFIER	EP2815401B1	4/4/2018	Great Britain		
MAGNETIC LOGIC UNITS CONFIGURED TO MEASURE MAGNETIC FIELD DIRECTION	EP2823512B1	10/5/2016	Europe	3/6/2013	EP20130757552
MAGNETIC LOGIC UNITS CONFIGURED TO MEASURE MAGNETIC FIELD DIRECTION	EP2823512B1	10/5/2016	Germany		
MAGNETIC LOGIC UNITS CONFIGURED TO MEASURE MAGNETIC FIELD DIRECTION	EP2823512B1	10/5/2016	France		
MAGNETIC LOGIC UNITS CONFIGURED TO MEASURE MAGNETIC FIELD DIRECTION	EP2823512B1	10/5/2016	Great Britain		
Method for writing to a Random Access Memory (MRAM) Cell with improved MRAM Cell Lifespan	EP2672487	8/5/2015	Europe	6/8/2012	2012EP-290195
Method for writing to a Random Access Memory (MRAM) Cell with improved MRAM Cell Lifespan	EP2672487	8/5/2015	Germany		
Method for writing to a Random Access Memory (MRAM) Cell with improved MRAM Cell Lifespan	EP2672487	8/5/2015	Great Britain		
Method for writing to a Random Access Memory (MRAM) Cell with improved MRAM Cell Lifespan	EP2672487	8/5/2015	France		
MRAM element having improved data retention and low writing temperature	EP2672488	8/19/2015	Europe	6/8/2012	2012EP-290196

MRAM element having improved data retention and low writing temperature	EP2672488	8/19/2015	Germany		
MRAM element having improved data retention and low writing temperature	EP2672488	8/19/2015	France		
MRAM element having improved data retention and low writing temperature	EP2672488	8/19/2015	Great Britain		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	WO 2014/048758	4/3/2014	PCT	9/12/2013	PCT/EP2013/068867
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712078	6/3/2015	Europe	9/25/2012	2012EP-290315
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712078	6/3/2015	Germany		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712078	6/3/2015	France		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712078	6/3/2015	Great Britain		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	WO 2014/048757	4/3/2014	PCT	9/12/2013	PCT/EP2013/068866
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712079	6/3/2015	Europe	9/25/2012	2012EP-290316
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712079	6/3/2015	Germany		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712079	6/3/2015	Great Britain		
Magnetic logic unit (MLU) cell and amplifier having a linear magnetic signal	EP2712079	6/3/2015	France		
Self-Referenced MRAM Element and Device having improved Magnetic Field	WO 2014/063938	5/1/2014	PCT	2/11/2013	PCT/EP2013/071357
Self-Referenced MRAM Element and Device having improved Magnetic Field	EP2722902	11/30/2016	Europe	10/22/2012	2012-EP290360

Self-Referenced MRAM Element and Device having improved Magnetic Field	EP2722902	11/30/2016	Germany		
Self-Referenced MRAM Element and Device having improved Magnetic Field	EP2722902	11/30/2016	Great Britain		
Self-Referenced MRAM Element and Device having improved Magnetic Field	EP2722902	11/30/2016	France		
MEMORY DEVICES WITH MAGNETIC RANDOM ACCESS MEMORY (MRAM) CELLS AND ASSOCIATED STRUCTURES FOR CONNECTING THE MRAM CELLS	EP2909837B1	3/7/2018	Europe	10/18/2013	EP20130848270
MEMORY DEVICES WITH MAGNETIC RANDOM ACCESS MEMORY (MRAM) CELLS AND ASSOCIATED STRUCTURES FOR CONNECTING THE MRAM CELLS	EP2909837B1	3/7/2018	Great Britain	10/18/2013	EP20130848270
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	WO 2014/063939	5/1/2014	PCT	10/11/2013	PCT/EP2013/071360
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	EP2725580	7/17/2018	Europe	10/25/2012	2012EP-290368
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	EP2725580	7/17/2018	Germany		
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	EP2725580	7/17/2018	France		
Thermally Assisted MRAM Cell and Method for writing a Plurality of Bits in the MRAM Cell	EP2725580	7/17/2018	Great Britain		
Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	WO 2014/082897	6/5/2014	PCT	11/19/2013	PCT/EP2013/074194
Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	EP2736045	9/21/2016	Europe	11/27/2012	2012EP-290413
Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	EP2736045	9/21/2016	Germany		
Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	EP2736045	9/21/2016	France		

Magnetic Random Access Memory (MRAM) Cell with Low Power Consumption	EP2736045	9/21/2016	Great Britain		
Magnetoresistive element having enhanced exchange for spintronic devices	WO 2014/082896	6/5/2014	PCT	11/19/2013	PCT/EP2013/074191
Magnetoresistive element having enhanced exchange for spintronic devices	EP2738769	9/4/2019	Europe	11/28/2012	2012EP-290416
Magnetoresistive element having enhanced exchange for spintronic devices	EP2738769	9/4/2019	Germany		
Magnetoresistive element having enhanced exchange for spintronic devices	EP2738769	9/4/2019	France		
Magnetoresistive element having enhanced exchange for spintronic devices	EP2738769	9/4/2019	Great Britain		
Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	WO 2014/086718	6/12/2014	PCT	12/2/2013	PCT/EP2013/075254
Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	EP2741296	1/30/2019	Europe	12/7/2012	2012EP-290429
Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	EP2741296	1/30/2019	Germany		
Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	EP2741296	1/30/2019	France		
Self-referenced magnetic random access memory (MRAM) and method for writing to the MRAM cell with increased reliability and reduced power consumption	EP2741296	1/30/2019	Great Britain		
MRAM element with low writing temperature	WO 2014/114550	7/31/2014	PCT	1/16/2014	PCT/EP2014/050772

MRAM element with low writing	EP2760025	1/2/2019	Europe	1/23/2013	2013EP-290019
MRAM element with low writing	EP2760025	1/2/2019	Germany		
MRAM element with low writing temperature	EP2760025	1/2/2019	Great Britain		
MRAM element with low writing	EP2760025	1/2/2019	France		
Self-referenced MRAM cell that can be read with reduced power consumption	WO 2014/135385	9/12/2014	PCT	9/12/2014	PCT/EP2014/053442
Self-referenced MRAM cell that can be read with reduced power consumption	EP2775480	11/14/2018	Europe	3/7/2013	EP201302900046
Self-referenced MRAM cell that can be read with reduced power consumption	EP2775480	11/14/2018	Germany		
Self-referenced MRAM cell that can be read with reduced power consumption	EP2775480	11/14/2018	Great Britain		
Self-referenced MRAM cell that can be read with reduced power consumption	EP2775480	11/14/2018	France		
TA-MRAM cells with improved reliability at writing	WO 2014/177368	11/6/2014	PCT	4/11/2014	PCT/EP2014/057415
TA-MRAM cells with improved reliability at writing	EP2800096	8/1/2018	Europe	4/29/2013	2013EP-290096
TA-MRAM cells with improved reliability at writing	EP2800096	8/1/2018	Germany		
TA-MRAM cells with improved reliability at writing	EP2800096	8/1/2018	Great Britain		
TA-MRAM cells with improved reliability at writing	EP2800096	8/1/2018	France		
Self referenced memory with Spin-Orbit Torque reading or writing scheme	WO 2015/039912	3/26/2015	PCT	9/8/2014	PCT/EP2014/069082

Self referenced memory with Spin-Orbit Torque reading or writing scheme	EP2851903	3/1/2017	Europe	9/19/2013	2013EP-290226
Self referenced memory with Spin-Orbit Torque reading or writing scheme	EP2851903	3/1/2017	Germany		
Self referenced memory with Spin-Orbit Torque reading or writing scheme	EP2851903	3/1/2017	Great Britain		
Self referenced memory with Spin-Orbit Torque reading or writing scheme	EP2851903	3/1/2017	France		
Method for measuring three-dimensional magnetic fields	WO 2016/050300	4/7/2016	PCT	10/1/2014	PCT/EP2014/071104
Method for measuring three-dimensional magnetic fields	EP2860542	4/20/2016	Europe	10/11/2013	2013EP-290243
Method for measuring three-dimensional magnetic fields	EP2860542	4/20/2016	Germany		
Method for measuring three-dimensional magnetic fields	EP2860542	4/20/2016	France		
Method for measuring three-dimensional magnetic fields	EP2860542	4/20/2016	Great Britain		
Tridimensional magnetic sensors	EP2860543	4/20/2016	Europe	10/11/2013	2013EP-290244
Tridimensional magnetic sensors	WO 2015/052063	4/16/2015	PCT	10/11/2013	PCT/EP2014/071108
Tridimensional magnetic sensors	EP2860543	4/20/2016	Germany		
Tridimensional magnetic sensors	EP2860543	4/20/2016	France		
Tridimensional magnetic sensors	EP2860543	4/20/2016	Great Britain		
Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility			PCT	2/3/2015	PCT/EP2015/052161
Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility	EP2905783	9/19/2018	Europe	2/6/2014	EP14290031.5
Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility	EP2905783	9/19/2018	Germany		

Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility	EP2905783	9/19/2018	France		
Method for writing to a MRAM device configured for self-referenced read operation with improved reproducibility	EP2905783	9/19/2018	Great Britain		
Multibit readout mechanism for multi-junction angle-based storage	WO 2015/169610	11/12/2015	PCT	4/23/2015	PCT/EP2015/058797
Multibit readout mechanism for multi-junction angle-based storage	EP2942780	10/30/2019	Europe	5/9/2014	2014EP0290144
Multibit readout mechanism for multi-junction angle-based storage	EP2942780	10/30/2019	Germany		
Multibit readout mechanism for multi-junction angle-based storage	EP2942780	10/30/2019	Great Britain		
Multibit readout mechanism for multi-junction angle-based storage	EP2942780	10/30/2019	France		
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer		12/23/2015	PCT	5/28/2015	PCT/EP2015/061865
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer	EP2958108	8/28/2019	Europe	6/17/2014	EP20140290174
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer	EP2958108	8/28/2019	Great Britain		
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer	EP2958108	8/28/2019	France		
Self-referenced multibit MRAM cell having a synthetic antiferromagnetic storage layer	EP2958108	8/28/2019	Germany		
MLU based accelerometer using a magnetic tunnel junction	JP6494737	7/20/2017	Japan	6/30/2015	JP2017501181
MLU based accelerometer using a magnetic tunnel junction	WO 2016/005224	1/14/2016	PCT	6/30/2015	PCT/EP2015/064770
MLU based accelerometer using a magnetic tunnel junction	EP2966453	10/31/2018	Europe	7/11/2014	EP20140290201

MLU based accelerometer using a magnetic tunnel junction	EP2966453	10/31/2018	Germany		
MLU based accelerometer using a magnetic tunnel junction	EP2966453	10/31/2018	France		
MLU based accelerometer using a magnetic tunnel junction	EP2966453	10/31/2018	Great Britain		
apparatus and method for the arrangement of magnetic field detection elements in			Brazil	7/17/2015	BR102015017209 A
APPARATUS FOR MAGNETIC SENSOR BASED SURFACE SHAPE ANALYSIS	EP3194953B1	7/17/2019	Europe	9/18/2015	EP20150841310
APPARATUS FOR MAGNETIC SENSOR BASED SURFACE SHAPE ANALYSIS	EP3194953B1	7/17/2019	Germany		
APPARATUS FOR MAGNETIC SENSOR BASED SURFACE SHAPE ANALYSIS	EP3194953B1	7/17/2019	France		
APPARATUS FOR MAGNETIC SENSOR BASED SURFACE SHAPE ANALYSIS	EP3194953B1	7/17/2019	Great Britain		
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	WO 2016/050614	4/7/2016	PCT	9/24/2015	PCT/EP2015/072029
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	EP3002758	6/21/2017	Europe	10/3/2014	EP20140290298
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	JP6556227	7/19/2019	Japan	10/3/2014	EP20140290298
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	EP3002758	6/21/2017	Germany		
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	EP3002758	6/21/2017	France		
In-stack self-biased self-referenced MRAM based 1D magnetic field sensor structure	EP3002758	6/21/2017	Great Britain		
Method for writing in a magnetic device	WO 2016/050982	4/7/2016	PCT	10/2/2015	PCT/EP2015/072881
Method for writing in a magnetic device	EP3002759	8/5/2020	Europe	10/3/2014	EP20140290300

Method for writing in a magnetic device	EP3002759	8/5/2020	Germany		
Method for writing in a magnetic device	EP3002759	8/5/2020	France		
Method for writing in a magnetic device	EP3002759	8/5/2020	Great Britain		
Electrical interconnecting device for MRAM-based magnetic devices	EP3201957	9/20/2020	Europe	9/24/2035	EP20150774554
Electrical interconnecting device for MRAM-based magnetic devices	WO 2016/050615	4/7/2016	PCT	9/25/2015	PCT/EP2015/072031
Electrical interconnecting device for MRAM-based magnetic devices	JP6576440	8/30/2019	Japan	9/24/2015	JP2017516436
Electrical interconnecting device for MRAM-based magnetic devices	EP3201957	9/20/2020	Germany		
Electrical interconnecting device for MRAM-based magnetic devices	EP3201957	9/20/2020	France		
Electrical interconnecting device for MRAM-based magnetic devices	EP3201957	9/20/2020	Great Britain		
MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	WO 2016/079201	5/26/2016	PCT	11/18/2015	PCT/EP2015/077004
MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	EP3023803	5/18/2020	Europe	11/19/2014	EP20140290351
MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	EP3023803	5/18/2020	Germany		
MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	EP3023803	5/18/2020	France		

MLU cell for sensing an external magnetic field and a magnetic sensor device comprising the MLU cell	EP3023803	5/18/2020	Great Britain		
MLU based magnetic sensors with low bias and improved writability	WO 2016/113619	7/21/2016	PCT	12/23/2015	PCT/IB2015/059918
MLU based magnetic sensors with low bias and improved writability	JP6639509	1/7/2020	Japan	12/23/2015	JP2017537502
MLU based magnetic sensors with low bias and improved writability	EP3045928	7/12/2017	Europe	1/16/2015	EP20150290014
MLU based magnetic sensors with low bias and improved writability	EP3045928	7/12/2015	Great Britain		
MLU based magnetic sensors with low bias and improved writability	EP3045928	7/12/2015	Germany		
MLU based magnetic sensors with low bias and improved writability	EP3045928	7/12/2015	France		
MLU based magnetic sensors with improved writability and sensitivity	WO 2016/113618	7/21/2016	PCT	12/23/2015	PCT/IB2015/059917
MLU based magnetic sensors with improved writability and sensitivity	JP6864623	4/6/2021	Japan	12/23/2015	JP2017-537501
MLU based magnetic sensors with improved writability and sensitivity	EP3045927	12/20/2017	Europe	1/16/2015	EP20150290013
MLU based magnetic sensors with improved writability and sensitivity	EP3045927	12/20/2017	Germany		
MLU based magnetic sensors with improved writability and sensitivity	EP3045927	12/20/2017	France		
MLU based magnetic sensors with improved writability and sensitivity	EP3045927	12/20/2017	Great Britain		
MRAM-based programmable magnetic device for generating random numbers			PCT	2/22/2016	PCT/IB2015/050935
MRAM-based programmable magnetic device for generating random numbers	EP3062215	4/4/2018	Europe	2/14/2015	EP20150290039

MRAM-based programmable magnetic device for generating random numbers	EP3062215	4/4/2018	Germany		
MRAM-based programmable magnetic device for generating random numbers	EP3062215	4/4/2018	France		
MRAM-based programmable magnetic device for generating random numbers	EP3062215	4/4/2018	Great Britain		
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same		10/26/2016	PCT	4/6/2016	PCT/IB2016/051940
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same	EP3082129	9/8/2021	Europe	4/13/2015	EP20150290097
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same	EP3082129	9/8/2021	Germany		
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same	EP3082129	9/8/2021	France		
Logic gate module for performing logic functions comprising a MRAM cell and method for operating the same	EP3082129	9/8/2021	Great Britain		
Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	WO 2016/193908	12/8/2016	PCT	5/31/2016	PCT/IB2016/053195
Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	EP3101654	9/9/2020	Europe	6/5/2015	EP20150290151

Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	EP3101654	9/9/2020	Germany		
Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	EP3101654	9/9/2020	France		
Magnetic device configured to perform an analog adder circuit function and method for operating such magnetic device	EP3101654	9/9/2020	Great Britain		
Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	WO 2017/006210	1/12/2017	PCT	6/27/2016	PCT/IB2016/053820
Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	EP3115994	6/8/2022	Europe	7/5/2015	EP20150290176
Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	EP3115994	6/8/2022	Germany		
Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	EP3115994	6/8/2022	France		

Magnetic memory device that is protected against reading using an external magnetic field and method for operating such magnetic memory device	EP3115994	6/8/2022	Great Britain		
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	WO 2017/153883	9/14/2017	PCT	3/6/2017	PCT/IB2017/051282
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	JP6947745	9/21/2021	Japan	3/6/2017	JP2018546851
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	EP3217446	2/23/2022	Europe	3/10/2016	EP20160290045
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	EP3217446	2/23/2022	Germany		
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	EP3217446	2/23/2022	France		
Magnetoresistive element having an adjustable magnetostriction and magnetic device comprising the magnetoresistive element	EP3217446	2/23/2022	Great Britain		
Magnetoresistive-based signal shaping circuit for audio applications	WO 2017/158517	9/21/2017	PCT	3/15/2017	PCT/IB2017/051479
Magnetoresistive-based signal shaping circuit for audio applications	JP6784772	10/27/2020	Japan	3/15/2017	JP2018548892

Magnetoresistive-based signal shaping circuit for audio applications	EP3220544	12/26/2018	Europe	5/16/2016	EP20160290048
Magnetoresistive-based signal shaping circuit for audio applications	EP3220544	12/26/2018	Germany		
Magnetoresistive-based signal shaping circuit for audio applications	EP3220544	12/26/2018	France		
Magnetoresistive-based signal shaping circuit for audio applications	EP3220544	12/26/2018	Great Britain		
MRAM REFERENCE CELL WITH SHAPE ANISOTROPY TO ESTABLISH A WELL-DEFINED MAGNETIZATION ORIENTATION			Europe	2/7/2018	18750830.4
MRAM REFERENCE CELL WITH SHAPE ANISOTROPY TO ESTABLISH A WELL-DEFINED MAGNETIZATION ORIENTATION			Japan	2/7/2018	2019-542530
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell	WO 2018/185608	10/11/2018	PCT	3/28/2018	PCT/IB2018/052111
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell		10/2/2023	Japan	3/28/2018	JP2019554380
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell	EP3385741	12/18/2019	Europe	4/7/2017	EP20170290053
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell	EP3385741	12/18/2019	Germany		
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell	EP3385741	12/18/2019	Great Britain		

for measuring said magnetic fields using the magnetic sensor cell							
Magnetic sensor cell for measuring one- and two-dimensional magnetic fields and method for measuring said magnetic fields using the magnetic sensor cell	EP3385741	12/18/2019	France				
Apparatus for generating a magnetic field and method of using said apparatus	WO 2019/021078	1/31/2019	PCT	6/25/2018	PCT/IB2018/054662		
Apparatus for generating a magnetic field and method of using said apparatus	JP7157136	9/24/2020	Japan	6/25/2018	JP2020502997		
Apparatus for generating a magnetic field and method of using said apparatus			Europe	6/25/2018	EP20180753233		
MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	WO 2019/180579	9/26/2019	PCT	3/18/2019	PCT/IB2019/052169		
MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	JP7361704	10/5/2023	Japan	3/18/2019	JP2020548952		
MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	EP3544014	7/15/2020	Europe	3/20/2018	EP20180315003		
MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	EP3544014	7/15/2020	Germany				
MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	EP3544014	7/15/2020	France				

MLU-based magnetic device having an authentication and physical unclonable function and method of authentication using said MLU device	EP3544014	7/15/2020	Great Britain		
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	WO 2020/115626	6/11/2020	PCT	11/29/2019	PCT/IB2019/060323
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	EP3891648	7/26/2023	Europe	11/29/2019	EP20190816465
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	JP7307167	7/3/2023	Japan	11/29/2019	JP2021529045
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	EP3891648	7/26/2023	Germany		
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	EP3891648	7/26/2023	France		
Reader device for reading information stored on a magnetic strip and a method for decoding the read information	EP3891648	7/26/2023	Great Britain		
Magnetic angular sensor device for sensing high magnetic fields with low angular error	WO 2020/121095	6/18/2020	PCT	11/26/2019	PCT/IB2019/060175
Magnetic angular sensor device for sensing high magnetic fields with low angular error			Japan	11/26/2019	JP2021531746
Magnetic angular sensor device for sensing high magnetic fields with low angular error			Korea	11/26/2019	KR20217017687
Magnetic angular sensor device for sensing high magnetic fields with low angular error	EP3667346	6/8/2022	Europe	12/11/2018	EP20180315049
Magnetic angular sensor device for sensing high magnetic fields with low angular error	EP3667346	6/8/2022	Great Britain		

Magnetic angular sensor device for sensing high magnetic fields with low angular error	EP3667346	6/8/2022	France		
Magnetic angular sensor device for sensing high magnetic fields with low angular error	EP3667346	6/8/2022	Germany		
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields	WO 2020/121108	6/18/2020	PCT	11/29/2019	PCT/IB2019/060324
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields			Korea	11/29/2019	KR20217017686
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields			Japan	11/29/2019	JP2021531744
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields	EP3667347	9/8/2021	Europe	12/13/2018	EP20180315050
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields	EP3667347	9/8/2021	Germany		
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields	EP3667347	9/8/2021	France		
Magnetoresistive-based sensing bridge circuit for two-dimensional sensing of high magnetic fields	EP3667347	9/8/2021	Great Britain		
Magnetic reader head sensor device for reading magnetic stripes and method for manufacturing the sensor device			Japan	12/5/2019	JP2019220019
Magnetic reader head sensor device for reading magnetic stripes and method for manufacturing the sensor device			Europe	11/22/2019	EP20190210976
Magnetic reader head sensor device for reading magnetic stripes and method for manufacturing the sensor device			Europe	12/24/2018	EP20180315053

Devices and methods for magnetic sensor output compensation based on ambient temperature				Korea	2/19/2020	KR20217030189A
Devices and methods for magnetic sensor output compensation based on ambient temperature				Japan	2/19/2020	JP2021547413A
Devices and methods for magnetic sensor output compensation based on ambient temperature	WO 2020/172245	8/27/2020		PCT	2/19/2020	PCT/US2020/018787
Electronic circuit for measuring an angle and an intensity of an external magnetic field	WO 2020/188513	9/24/2020		PCT	3/19/2020	PCT/IB2020/052517
Electronic circuit for measuring an angle and an intensity of an external magnetic field				Japan	3/19/2020	JP2021547376
Electronic circuit for measuring an angle and an intensity of an external magnetic field				Korea	3/19/2020	KR20217028590
Electronic circuit for measuring an angle and an intensity of an external magnetic field				Europe	3/21/2019	EP20190315017
Magnetic element having an improved measurement range	WO 2020/217195	10/29/2020		PCT	4/23/2020	PCT/IB2020/053837
Magnetic element having an improved measurement range				Japan	4/23/2020	JP2021555820
Magnetic element having an improved measurement range				Korea	4/23/2020	KR20217031354
Magnetic element having an improved measurement range				Europe	4/23/2019	EP20190315026
Sensing layer with thin insertions for 2D applications	WO 2021/001738	1/7/2021		PCT	6/26/2020	PCT/IB2020/056073
Sensing layer with thin insertions for 2D applications				Europe	6/26/2020	EP20200735244
Sensing layer with thin insertions for 2D applications				Japan	6/26/2020	JP2021572390
Sensing layer with thin insertions for 2D applications				Korea	6/26/2020	KR102021704279 6

Sensing layer with thin insertions for 2D applications			Europe	7/2/2019	EP20190315051
Differential full bridge TMR current sensor without DTAP	WO 2021/001738	1/7/2021	PCT	6/26/2020	PCT/IB2020/056067
Differential full bridge TMR current sensor without DTAP			Japan	6/26/2020	JP2021571860
Differential full bridge TMR current sensor without DTAP			Korea	6/26/2020	KR20217042797
Differential full bridge TMR current sensor without DTAP	EP3761043	9/6/2023	Europe	7/5/2019	EP20190315059
Differential full bridge TMR current sensor without DTAP	EP3761043	9/6/2023	Germany		
Differential full bridge TMR current sensor without DTAP	EP3761043	9/6/2023	France		
Magnetoresistive sensor element having compensated temperature coefficient of sensitivity and method for manufacturing said element	WO 2021/156714	8/12/2021	PCT	1/29/2021	PCT/IB2021/050697
Magnetoresistive sensor element having compensated temperature coefficient of sensitivity and method for manufacturing said element			Japan	1/29/2021	JP2022538853
Magnetoresistive sensor element having compensated temperature coefficient of sensitivity and method for manufacturing said element			Korea	1/29/2021	KR102022702208 1
Magnetoresistive sensor element having compensated temperature coefficient of sensitivity and method for manufacturing said element			Europe	2/7/2020	EP20200315015
Temperature compensated MTJ-based sensing circuit for measuring an external magnetic field	WO 2021/176296	9/10/2021	PCT	2/22/2021	PCT/IB2021/051475

Temperature compensated MTJ-based sensing circuit for measuring an external magnetic field			Europe	2/22/2021	EP20210708754
Temperature compensated MTJ-based circuit for measuring an external magnetic field			Korea	2/22/2021	KR1020227030197
Temperature compensated MTJ-based sensing circuit for measuring an external magnetic field			Japan	2/22/2021	JP2022551010
Magnetic sensor for measuring an external magnetic field angle in a two-dimensional plane and method for measuring said angle using the magnetic sensor	WO 2021/176297	9/10/2021	PCT	2/22/2021	PCT/IB2021/051477
Magnetic sensor for measuring an external magnetic field angle in a two-dimensional plane and method for measuring said angle using the magnetic sensor			Europe	2/22/2021	EP20210708755
Magnetic sensor for measuring an external magnetic field angle in a two-dimensional plane and method for measuring said angle using the magnetic sensor			Japan	2/22/2021	JP2022548869
Magnetic sensor for measuring an external magnetic field angle in a two-dimensional plane and method for measuring said angle using the magnetic sensor			Korea	2/22/2021	KR20227028671
Magnetoresistive sensor element for sensing a two-dimensional magnetic field with low high-field error	WO 2021/181203	9/16/2021	PCT	3/2/2021	PCT/IB2021/051724
Magnetoresistive sensor element for sensing a two-dimensional magnetic field with low high-field error			Japan	3/2/2021	JP2022548871
Magnetoresistive sensor element for sensing a two-dimensional magnetic field with low high-field error			Korea	3/2/2021	KR20227028672

Magnetoresistive sensor element for sensing a two-dimensional magnetic field with low high-field error			Europe	3/11/2020	EP20200315038
Magnetic sensor element and device having improved accuracy under high magnetic	WO 2021/234504	11/25/2021	PCT	5/10/2021	PCT/IB2021/053951
Magnetic sensor element and device having improved accuracy under high magnetic			Japan	5/10/2021	JP2022568458
Magnetic sensor element and device having improved accuracy under high magnetic			Korea	5/10/2021	KR20227039540
Magnetic sensor element and device having improved accuracy under high magnetic			Europe	5/20/2020	EP20200315252
Magnetic sensor comprising magnetoresistive elements and system for programming such magnetic sensor	WO 2021/240432	12/2/2021	PCT	5/27/2021	PCT/IB2021/054647
Magnetic sensor comprising magnetoresistive elements and system for programming such magnetic sensor			Europe	5/28/2020	EP20200315270
Magnetic sensor comprising magnetoresistive elements and system for programming such magnetic sensor			Japan	5/28/2020	JP2022569043
Magnetic sensor comprising magnetoresistive elements and system for programming such magnetic sensor			Korea	5/28/2020	KR1020227040830
Magnetoresistive element for a 2D magnetic sensor having a reduced hysteresis response	WO 2022/058875	3/24/2022	PCT	9/14/2021	PCT/IB2021/058336
Magnetoresistive element for a 2D magnetic sensor having a reduced hysteresis response			Japan	9/14/2021	JP2023515805
Magnetoresistive element for a 2D magnetic sensor having a reduced hysteresis response			Korea	9/14/2021	KR1020237009350
Magnetoresistive element for a 2D magnetic sensor having a reduced hysteresis response			Europe	9/18/2020	EP20200315414

Magnetoresistive sensor element having a wide linear response and robust nominal performance and manufacturing method thereof	WO 2022/096992	5/12/2022	PCT	10/28/2021	PCT/IB2021/059971
Magnetoresistive sensor element having a wide linear response and robust nominal performance and manufacturing method thereof			Japan	10/28/2021	JP2023517996
Magnetoresistive sensor element having a wide linear response and robust nominal performance and manufacturing method thereof			Korea	10/28/2021	KR102023701043 ₃
Magnetoresistive sensor element having a wide linear response and robust nominal performance and manufacturing method thereof			Europe	11/3/2020	EP20200315443
Magnetoresistive element for sensing a magnetic field in a z-axis	WO 2023/139426	7/27/2023	PCT	12/9/2021	PCT/IB2021/061484
Magnetoresistive element for sensing a magnetic field in a z-axis			Japan	12/9/2021	JP202353538
Magnetoresistive element for sensing a magnetic field in a z-axis			Korea	12/9/2021	KR1020237019328
Magnetoresistive element for sensing a magnetic field in a z-axis			Europe	12/11/2020	EP20200315489
LINEARIZATION OF MAGNETIC SENSOR OUTPUT BASED ON CONTINUOUS CORRECTION OF HIGH ORDER VOLTAGE OUTPUT COMPONENTS	WO 2022/144621	7/7/2022	PCT	11/19/2021	PCT/IB2021/060743
LINEARIZATION OF MAGNETIC SENSOR OUTPUT BASED ON CONTINUOUS CORRECTION OF HIGH ORDER VOLTAGE OUTPUT COMPONENTS			Europe	11/19/2021	

LINEARIZATION OF MAGNETIC SENSOR OUTPUT BASED ON CONTINUOUS CORRECTION OF HIGH ORDER VOLTAGE OUTPUT COMPONENTS			Japan	11/19/2021	JP20230540805
LINEARIZATION OF MAGNETIC SENSOR OUTPUT BASED ON CONTINUOUS CORRECTION OF HIGH ORDER VOLTAGE OUTPUT COMPONENTS			Korea	11/19/2021	KR102023702598 1
Magnetoresistive element and magnetic sensor device having a high sensitivity and low zero-field offset-shift			Korea	9/18/2023	KR102023703179 3
Magnetoresistive element and magnetic sensor device having a high sensitivity and low zero-field offset-shift			PCT	3/15/2022	PCT/IB2022/052318
Magnetoresistive element and magnetic sensor device having a high sensitivity and low zero-field offset-shift			Europe	3/19/2021	EP20210315043
Magnetoresistive element and magnetic sensor device having a high sensitivity and low zero-field offset-shift			Europe		
Magnetoresistive element and magnetic sensor device having a high sensitivity and low zero-field offset-shift			Japan		
Magnetic sensor device having an improved measurement range			PCT	3/8/2022	PCT/IB2022/052046
Magnetic sensor device having an improved measurement range			Europe	3/29/2021	EP20210315054
Magnetic sensor device having an improved measurement range			Japan		
Magnetic sensor device having an improved measurement range			Korea		
Exchange bias simulations in AF-pinned SAF			PCT	4/4/2022	PCT/IB2022/053104
Exchange bias simulations in AF-pinned SAF			Europe	4/13/2021	EP20210315065
Exchange bias simulations in AF-pinned SAF			Japan		

Exchange bias simulations in AF-pinned SAF			Korea			
Magnetoresistive element having compensated temperature coefficient of TMR	WO 2023/012612	2/9/2023	PCT	7/28/2022	PCT/IB2022/056992	
Magnetoresistive element having compensated temperature coefficient of TMR			Europe	8/5/2021	EP20210315136	
COMMON MODE FIELD REJECTION MAGNETIC CURRENT SENSOR	WO 2023/079386	5/11/2023	PCT	10/10/2022	PCT/IB2022/059686	
Magnetoresistive element having high out-of-plane sensitivity	WO 2023/111757	6/22/2023	PCT	12/2/2022	PCT/IB2022/061689	
Magnetoresistive element having high out-of-plane sensitivity			Europe	12/17/2021	EP20210315282	
Magnetoresistive element having thermally robust performances after high-field exposure and sensor comprising the magnetoresistive element	WO 2023/161821	8/31/2023	PCT	2/22/2023	PCT/IB2023/051625	
Magnetoresistive element having thermally robust performances after high-field exposure and sensor comprising the magnetoresistive element			Europe	2/22/2022	EP20220315037	
Common Mode Field Rejection for Contactless Current Sensing	WO 2023/079386	5/11/2023	PCT	10/10/2022	PCT/IB2022/59686	
Cascade magnetic sensor circuit and a linear magnetic sensor device comprising the cascade magnetic sensor circuit			PCT	7/21/2023	PCT/IB2023/057466	
Cascade magnetic sensor circuit and a linear magnetic sensor device comprising the cascade magnetic sensor circuit			Europe	7/22/2022	EP20220315165	
Correction method for correcting the output voltage of a magnetic sensor			PCT	7/20/2023	PCT/IB2023/057421	
Correction method for correcting the output voltage of a magnetic sensor			Europe	7/22/2022	EP20220315164	
Magnetic sensor having low hysteresis			PCT	11/14/2023	PCT/IB2023/061441	
Magnetic sensor having low hysteresis			Europe	11/14/2022	EP20220315285	

Magnetic sensor device for sensing a magnetic field and having low sensitivity to inhomogeneities in the magnetic field			Europe	12/13/2022	EP20220315326
Magnetoresistive element having an out-of-plane sensitivity axis and having reduced hysteresis and increased working field range			Europe	2/17/2023	EP20230315034
TAN/COTAN analog sensor & implementation for a temperature stable linear 2D sensor			Europe		
Magnetoresistive element and magnetic switch comprising the Magnetoresistive element			Europe	5/23/2023	EP20230315217
Magnetic device, magnetic stack and sensing branch for low-noise TMR magnetic field sensor			Europe		
Improvement of measurement range of Vortex z-sensors			Europe		
Dipolar assisted z-axis magnetic sensor with enhanced sensitivity			Europe		
Method of producing an in-plane magnetic field at wafer level using planar coil(s)			Europe		
Wide Angular Range linear 2D sensor			Europe		