Curriculum Vitae of Richard A. Flasck

My fifty-two year professional career has involved high tech product development, intellectual property (IP) issues, projection displays, lens and optical system design, thin film optical filters, non-imaging optics, LCD flat panel displays and modules, backlighting of flat panel displays, light emitting diode (LED) product development, injection molding, chip-on-board development, and High Definition Television (HDTV) systems.

I am an inventor on twenty-six patents (26), both US and foreign, including one US design patent. I have concluded several licensing agreements, demonstrating both technical innovation and expertise in Intellectual Property (IP) issues. Additionally, on several occasions I have testified before the US International Trade Commission and in US District Court as an expert witness on display and lighting technologies.

I am also an author of twenty-five (25) published papers and conference presentations.

Education

- 1970 BS – Physics University of Michigan (Ann Arbor, MI)
- 1976 MS – Physics Oakland University (Rochester, MI)

Employment

- 1989 – Present
  - Organization: RAF Electronics Corp.
  - Position: Founder and CEO
    - Developed, patented, and licensed Liquid Crystal on Silicon (LCOS) microdisplay technology. Engaged in development and patent prosecution of proprietary LED based Solid State Lighting (SSL) products. Etendue limited optics, non-imaging and hybrid optics, thermal management, layout and electronic drive of LED arrays. Expertise in semiconductor IC's, Active Matrix Liquid Crystals Displays (AMLCD), thin films, optics, and video electronics. Optics and electronics manufacturing, technical consulting and independent testifying expert witness work in numerous patent lawsuits.

- 2002-2007
  - Organization: Diablo Optics, Inc.
  - Position: Co-founder and COO
    - Development, production and commercialization of key optical components for HDTV projectors. Polarization optics, condenser lenses, projection lenses, ultra-high performance optical thin film stacks. Established, and managed international supply chain. Developed domestic and international customers.

- 1997 – 1999
  - Organization: Alien Technology Corporation
  - Position: President and COO
    - Responsible for successful MEM fluidic self-assembly (FSA) technology implementation and completion of a DARPA contract. Managed company growth from a four-person start-up to a VC funded twenty person operation. Cleanroom, photolith, thin film deposition (back-end) semiconductor processing.

- 1982-1989
  - Organization: Alphasil, Inc.
  - Position: Founder and CEO
    - Pioneered amorphous silicon thin film transistor (TFT) active matrix Liquid Crystal Displays (AMLCD). World's first amorphous silicon TFT LCD pilot line in 1986. TFT process and circuit design, data driver and gate driver design, scalers, video circuits, backlighting, and inverter design.

- 1970 – 1982
  - Organization: Energy Conversion Devices, Inc.
  - Position: Scientist, Manager
    - Originated, managed, developed, and licensed several high tech products including thin film photovoltaics, ablative imaging films, EEPROMs, multi-chip modules, and superconducting materials.

Professional Affiliations

- Member - SPIE, Optica (formerly OSA), SID, IEEE, AES
- Co-Chairman – SPIE/ IS&T Symposium on Electronic Imaging (1991 and 1992)
- Current Board Member - RAF Electronics Corp.
- Former Board Member - Alphasil, Inc., Somanetics Corporation, Diablo Optics, Inc.

Testifying Expert Witness Experience in Patent Litigation

Date	2006 - 2007
Law Firm	Bingham McCutchen LLP
Client	Defendant - Seoul Semiconductor Company, Inc.
Case	Nichia Corporation v. Seoul Semiconductor 3:06-cv-0162 United States District Court, Northern District of California
Services	Expert witness, reports, deposition, trial testimony

Date	2007-2008
Law Firm	Orrick, Herrington & Sutcliffe LLP
Client	Respondent - Acer Incorporated and Acer America Corporation
Case	Hewlett Packard v. Acer Incorporated et al. U. S. International Trade Commission Investigation No. 337-TA-606
Services	Expert witness, reports, deposition, ITC hearing testimony

Date	2008
Law Firm	Fish & Richardson P.C.
Client	Complainant - Samsung
Case	Samsung v Sharp U. S. International Trade Commission Investigation No. 337-TA-631
Services	Expert witness, reports, ITC hearing testimony

Date	2008 - 2009
Law Firm	Fish & Richardson P.C.
Client	Respondent - Samsung
Case	Sharp v Samsung U. S. International Trade Commission Investigation No. 337-TA-634
Services	Expert witness reports, deposition, ITC hearing testimony

Date	2008 - 2009
Law Firm	Howrey LLP
Client	Complainant - O2Micro
Case	O2Micro v Monolithic Power Systems, MicroSemi U. S. International Trade Commission Investigation No. 337-TA-666
Services	Expert witness, reports, deposition, ITC hearing testimony

Date	2014
Law Firm	Kenyon & Kenyon
Client	Petitioner: Sony
Case	IPR: No. IPR2014-0168 Patent: USP 7,612,843
Services	Declaration supporting IPR and litigation prep

Date	2014 - 2015
Law Firm	Prebeg, Faucett & Abbott PLLC
Client	Plaintiff - Masakazu Ushijima
Case	Ushijima v. Samsung 1:12-cv-00318-LY United States District Court, Western District of Texas
Services	Expert witness, reports, deposition, trial testimony

Date	2015
Law Firm	Lerner, David, Littenberg, Krumholz & Mentlik, LLP
Client	Petitioner: Sony Corporation
Case	Delaware Display Group LLC and Innovative Display Technologies LLC v Sony Corp. et al., Case No. 1:13-cv-02111-UNA (D. Del.).
Services	Multiple expert declarations supporting IPR and litigation prep

Date	2015-2016
Law Firm	Marc Labgold PC
Client	IPR petitioner: Funai Corporation
Case	Funai v Gold Charm Limited Case No. IPR2015-01468
Services	Expert Declarations and deposition

Date	2015
Law Firm	Sidley Austin LLP
Client	Defendant Exar Corporation
Case	Phenix, LLC v Exar et al. Case No. 6:15-CV-00436-JRG-KNM.
Services	Expert Declaration and deposition

Date	2016
Law Firm	Kellogg, Huber, Hansen, Todd, Evans & Figel, P.L.L.C.
Client	Defendant Funai Corporation
Case	MiiC v Funai. C.A. No. 14-804-RGA.
Services	Expert Declaration

Date	2016
Law Firm	Gibson, Dunn & Crutcher LLP.
Client	Defendant Vizio, Inc.
Case	Delaware Display Group LLC v Vizio. Case No. 13-cv-02112-RGA.
Services	Expert Invalidity Report and Deposition

Date	2017
Law Firm	Kurth Kenyon LLP
Client	Defendant Sony.
Case	ARRIS v Sony US International Trade Commission Investigation No. 337-TA-1060
Services	IPR Expert Declaration

Date 2018
Law Firm Taft Stettinius &Hollister LLP
Client Petitioner BlueHouse Global, LTD..
Case BlueHouse v Semiconductor Energy Laboratory Co. LTD IPR Petitions
Services IPR Expert Declaration for five patents

Date 2018
Law Firm K&L Gates LLP
Client Defendant Wistron Corp.
Case Phenix, LLC v Wistron Case No. 2:17-cv-00711-RWS
Services Expert Declaration, deposition

Date 2018
Law Firm Goodwin LLP et al.
Client Respondent Absen et al.
Case Ultravision v Absen et al ITC Investigation No. 337-TA-1114
Services Expert Report

Date 2018
Law Firm DLA Piper.
Client Petitioner Viavi Solutions, inc..
Case Viavi v Materion Corp PRG Unassigned US Pat No. 9,989684
Services Declaration for PGR

Date 2019
Law Firm Jones Day
Client Petitioner NEC
Case NEC v Ultravision IPR2019-01123, IPR2019-01117
Services Declarations for IPRs

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v Samsung Case No. 2:19-cv-00152-JRG
Services CC Declaration and Deposition

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v LG / Sony Case No. 6:19-cv-00236-ADA
Services CC Declarations and Deposition

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v Lenovo / Motorola Case No. 3:19-cv-05644-SI
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v Dell Case No. 1:19-cv-00819-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v HP Case No. 1:19-cv-00873-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v Microsoft Case No. 1:19-cv-00874-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v Amazon Case No. 1:19-cv-00898-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Neodron
Case Neodron v Samsung Case No. 1:19-cv-00903-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas
Case Solas v Samsung Case 2:19-cv-00152-JRG
Services CC Declaration, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v Dell Case No. 6:19-cv-00514-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v Google Case No. 6:19-cv-00515-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v Apple Case No. 6:19-cv-00537-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Plaintiff Solas OLED Ltd.
Case Solas v HP Case No. 6:19-cv-00631-ADA
Services CC Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Solas OLED Ltd.
Case LGD v Solas OLED Case IPR2020-00177
Services IPR Declaration, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00192
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00234
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00225
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00406
Services IPR Declaration, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00267
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00267
Services IPR Declaration

Date 2020
Law Firm Goodwin
Client Govision.
Case Ultravision v Govision Case 2:18-cv-00100-JRG-RSP
Services Invalidity Expert Report, Deposition

Date 2020-2021
Law Firm Goodwin
Client Shenzhen Absen
Case Ultravision v Shenzhen Absen Case 2:18-cv-00112-JRG-RSP
Services Invalidity Expert Report, Deposition, Trial testimony

Date 2020
Law Firm Goodwin
Client Barco
Case Ultravision v Barco Case 2:18-cv-00253-JRG-RSP
Services Invalidity Expert Report, Deposition

Date 2020
Law Firm Goodwin
Client Yaham Optoelectronics
Case Ultravision v Yaham Optoelectronics Case 2:18-cv-00118-JRG-RSP
Services Invalidity Expert Report, Deposition

Date 2020
Law Firm Goodwin
Client Ledman Optoelectronic
Case Ultravision v Ledman Optoelectronic Case 2:18-cv-00101-JRG-RSP
Services Invalidity Expert Report, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Patent owner Solas
Case Samsung v Solas Case IPR2020-00140
Services IPR Declaration, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Solas
Case Samsung v Solas Case IPR2020-00320
Services IPR Declaration, Deposition

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00515
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Dell, Lenovo, HP v Neodron Case IPR2020-00731
Services IPR Declaration

Date 2020
Law Firm Russ August & Kabat
Client Patent Owner Neodron Ltd.
Case Samsung v Neodron Case IPR2020-00308
Services IPR Declaration

Date 2021
Law Firm Perkins Coie
Client TCL
Case TCL v Philips Case IPR2021-00498
Services IPR Declaration

Date 2020-2021
Law Firm Goodwin
Client Shenzhen Absen
Cases Shenzen Absen v Ultravision
IPR 2020-01049
IPR 2020-01050
IPR 2020-01052
Services Invalidity Declarations

Date 2021
Law Firm Russ August & Kabat
Client Solas
Case Solas v BOE/Samsung ITC 337-TA-1243
Services Claim Construction Declaration

Date 2021
Law Firm Finnegan
Client Tianma
Case Tianma v Japan Display Inc. IPR2021-01059
Services IPR Declaration

Date 2021
Law Firm Finnegan
Client Tianma
Case Tianma v Japan Display Inc. IPR2021-01060
Services IPR Declaration

Date 2021
Law Firm Finnegan
Client Tianma
Case Tianma v Japan Display Inc. IPR2021-01028
Services IPR Declaration

Date 2021
Law Firm Finnegan
Client Tianma
Case Tianma v Japan Display Inc. 2:20-cv-00283-JRG
2:20-cv-00284-JRG
2:20-cv-00285-JRG Consolidated
Services Expert Reports, Depositions

Date 2021
Law Firm Russ August & Kabat
Client Solas
Case Solas v Samsung 2:21-cv-000104-JRG
Services Claim Construction Declaration, Deposition

Date 2022
Law Firm Winston & Strawn
Client Hisense
Case Hisense v Vista Peak Ventures IPR2022-01425
Services IPR Declaration

Patents & Patent Applications

Patent	Date	Description
9,328,898	5/3/16	High Efficiency Hybrid Illumination System
6,266,037	7/24/01	Wafer Based Active Matrix
700353/1991	8/19/99	Wafer Based Active Matrix
0438565B1	6/4/97	Wafer Based Active Matrix
5,123,847	6/23/92	Method of Manufacturing Flat Panel Back Planes, Display Transistors
5,108,172	4/28/92	An Improved Active Matrix Reflective Image Plane Module and Projection System
UM-68958	2/21/92	Wafer Based Active Matrix
5,024,524	6/18/91	Reflective Image Plane Module
UM-67108	12/14/91	An Active Matrix Reflective Projection Apparatus
D320,403	10/1/91	Liquid Crystal Screen for Overhead Projector
5,022,750	6/11/91	An Active Matrix Reflective Projection System

4,842,378	6/27/89	Method of illuminating Flat Panel Displays to Provide CRT Appearing Displays
4,820,222	4/11/89	Method of manufacturing Flat Panel Backplanes Including Improved Testing and Yields Thereof and Displays Made Thereby
4,736,229	4/5/88	Method of Manufacturing Flat Panel Backplanes, Display Transistors and Displays Made Thereby
4,651,185	3/17/87	Method of Manufacturing Thin Film Transistors and Transistors Made Thereby
4,599,705	7/8/86	Programmable Cell for Use in Programmable Electronic Arrays
4,545,112	10/8/85	Method of Manufacturing Thin Film Transistors and Transistors Made Thereby
4,499,557	2/12/85	Programmable Cell for Use in Programmable Electronic Arrays: Doped Amorphous Silicon Alloy
4,458,297	7/3/84	Universal Interconnect Substrate
4,339,255	7/13/82	Method and Apparatus for Making Modified Amorphous Glass Materials
4,332,466	6/1/82	Apparatus for Producing Microform Records at High Speed from Computer or Other Electronic Data Signal Sources
FR2489843A1	3/12/82	Apparatus and Method for Producing Amorphous Modified Glass
GB2083455A	9/7/81	Spinning Ribbons of Metallic, Dielectric, and Semiconductor Modified Amorphous Glass Materials
4,170,728	10/9/79	Heat Applying Microfilm Recording Apparatus
3,983,076	9/28/76	N-Type Amorphous Semiconductor Materials: Chalcogenides
DE2429507	1/23/75	N Conductivity Amorphous Semiconductor Material

Papers and Conference Presentations

1. J. Ferry, R. Winston, R. Flasck, “Nonimaging Optics Applications in Theater Lighting”, SPIE Optics+Photonics Conference, San Diego, CA, August 19, 2018

2. Richard Flasck, ”Ultra High Efficiency Beam Forming Solid State Lighting Luminaires”, SAIC Non-Imaging Optics Workshop, La Jolla, CA, August 24, 2013

3. Richard Flasck, ”Ultra High Efficiency Beam Forming Solid State Lighting Luminaires”, Society for Information Display Conference, Boston, June 7, 2012.

4. R. Flasck, ” Design, Production, and Application of High Performance Dichroic Coatings - One Step Beyond the Cutting Edge – “, presented at the SAIC Non-Imaging Optics Workshop, La Jolla, CA, August 25, 2007

5. R. Flasck, “The Critical Role of Optical Interference Coatings in High Brightness – Etendue Limited Systems Such as HDTV Projectors”, at The 2007 Optical Interference Coatings Topical Meeting and Tabletop Exhibit, Optical Society of America, June 7, 2007.

6. R. Flasck, “X-Cubes – Revisited for LCOS”, Bay Area Society for Information Display Meeting, October 24, 2002

7. R. Flasck, “The Care and Feeding of Single Crystal Silicon Light Valve Design,” Society for Information Display FPD Strategic and Technical Symposium, September 9-10, 1998.

8. R. Flasck, “The Care and Feeding of Single Crystal Silicon Light Valve Design, “ Stanford Resources 1998 Display Conference

9. R. Flasck, and E. Rawson, “High Optical Efficiency PDLC/CMOS Projection Systems,” IC Expo/WESCON 1996

10. R. Flasck, “Current and Near Term Applications of Flat Panel Display Devices,” Applications of Electronic Imaging; John Urbach, Editor; Proceedings of SPIE, Vol 1082 (1989). – Invited Critical Review Paper

11. R. Flasck, “U.S. Display Suppliers and Developers: Comments on Developments and Manufacturing,” Flat Panel Displays 1988 Conference and Exhibition; Stanford Resources, Inc. (1988). – Invited Presentation and Expert Panel Member

12. S. Ladderman, A. Bienenstock, R. Flasck, and F. Betts, “Structural Studies of Sputtered Ni-As-O Films,” Journal of Non-Crystalline Solids, Vol 70, Num 3, 409-427 (1985).

13. R. Flasck, and S. Holmberg, “Amorphous Silicon Thin Film Transistor (TFT) Driven Liquid Crystal Displays (LCD),” Advances in Display Technology V, Elliott Schlam, Editor, Proceedings of SPIE, Vol 526, 94-98 (1985).

14. S. Ovshinski, K. Sapru, and R. Flasck, “Modification of SiO_2,” Bulletin of the American Physical Society, Vol 23, Num 3, 461 (1978).

15. R. Flasck, M. Izu, K. Sapru, T. Anderson, S. Ovshinski, and H. Fritzsche, “Optical and Electronic Properties of Modified Amorphous Materials,” Proceedings of the Seventh International Conference on Amorphous and Liquid Semiconductors, University of Edinburgh, Scotland, 527-528 (1977).

16. S. Ovshinski, R. Flasck, M. Shaw, and K. Dec, “An Experimental Study of Threshold Switching in Some Binary Chalcogenide Based Glass Films,” Tr. 6-iMezhdunar.Konf.po Amorfin. I Zhidk, Poluprovodn, (1975). Struktura I Svoistva Nekristal. Poluprovodn., 190-194 (1976).

17. M. Tenhover, P. Boolchand, and R. Flasck, “Mossbauer Effect Studies in Amorphous As_xTe_{1-x} Binary, “Bulletin of the American Physical Society, Vol 21, Num1, 20 (1976).

18. P. Boolchand, M. Tenhover, and R. Flasck, “Te-125 Mossbauer Effect in Amorphous As_xTe_{1-x},” Bulletin of the American Physical Society, Vol 21, Num 3, 460 (1976).

19. M. Tenhover, P. Boolchand, and R. Flasck, “Amorphous to Crystalline Transition in As_xTe_{1-x} System,” Bulletin of the American Physical Society, Vol 21, Num7, 928 (1976).

20. H. Rockstad, R. Flasck, and J. P. deNeufville, Bulletin of the American Physical Society, Vol 18, 454 (1973).

21. H. Rockstad, and R. Flasck, “Photo –thermopower in Amorphous Chalcogenide Films,” Proceedings of the Fifth International Conference on Amorphous and Liquid Semiconductors, Garmisch-Partenkirchen, Germany, 1311-1315 (1973).

22. R. Flasck, and H. Rockstad, “The Thermal Conductivity of Some Chalcogenide Glasses,” Journal of Non-Crystalline Solids, Vol 12, 353-356 (1973).

23. H. Rockstad, and R. Flasck, Bulletin of the American Physical Society, Vol 17, 116 (1972).

24. H. Rockstad, R. Flasck, and S. Iwasa, “Seebeck Coefficient in Amorphous Chalcogenide Films,” Journal of Non-Crystalline Solids, Vol 8-10, 326-333 (1972).

25. D. Meyer, and R. Flasck, “New Configuration for a Dipole Magnet for Use in High Energy Physics Applications,” Nuclear Instrumentation and Methods, Vol 80, Num 2, 339-341 (1970).