# SUMMARY

# Owner, RF Engineering Consultant

Decades of delivering results beyond expectations by combining technical expertise with excellent relational abilities. Award-winning career conceiving, selling, developing and building innovative, elegant solutions to highly technical problems. Known for no-nonsense clarity and leadership along with an ability to complete projects no matter how difficult.

# KEY COMPETENCIES

* Product line management
* R&D and RF Lab management
* Intellectual property management
* Waveguide and coaxial RF filter R&D
* Antenna and transmission line R&D
* Electromechanical system design
* FEA electromagnetic simulation oversight
* Design/drafting management
* High power RF System & component design
* Multi-channel broadband system design
* OEM and end user sales
* Small business entrepreneurship
* Presentations to all audiences
* Vendor relations
* Worldwide travel
* Vector network analyzer (VNA) testing
* Field service and troubleshooting

# PROFESSIONAL EXPERIENCE

### JS Engineering, Portland, Maine 2023 to Present

***Owner/ RF Engineering Consultant***

JS Engineering provides contract engineering, project management and field services for television, radio, and wireless markets.

* RF equipment program and project management including: tower selection; specification, design and installation of antenna, transmission line, combiner, and transmitter systems.
* Product representation and management including marketing plans, sales strategies and direct sales.
* On-site failure analysis, drone temperature measurements, pattern measurements, RFR and receive field strength studies.

### Signal Infrastructure Group PBC, Boulder, Colorado 2021 to 2023

***EVP SFN Transmission Infrastructure***

Responsible for transmission LOB for start-up company implementing transmission as a service (TaaS) in the broadcast market. Primary customer and internal technical resource for nextgen TV RF system design and implementation.

### American Tower Corporation, Woburn, Massachusetts 2013 to 2021

***Principal Engineer RF Broadcast***

Primary technical resource for broadcast team.

* Completed construction of 16 new TV broadband antenna systems in a 3 year $40M capital spend program and reconfigured 26 existing TV antenna systems for incentive auction repack.
* Performed sales and marketing support to customers.

***Broadcast Account Manager***

Direct sales of tower space to broadcast television and radio customers.

* Primary new colocation salesperson for broadcast team.
* Assisted team in exceeding new business goals.

### SPX Dielectric, Raymond, Maine 2013

***Director, Wireless Business Development***

Introduced and sold new wireless antenna product line to tier 2 and 3 wireless carriers.

* Developed and presented BTS sector antenna product information to wireless carriers.
* Succeeded in closing first sales after completion of R&D program.

### JS Engineering, Portland, Maine 2005 to 2013

***Owner/Broadcast RF Engineering Consultant***

Started company and recruited four contract employees to provide design engineering, field services, and RF monitoring products to television, radio, and wireless markets.

* Traveled to and tested >500 Qualcomm MediaFLO, FLO-TV sites in five years.
* Performed complex RF system analysis, troubleshooting and testing.
* Assisted >50 stations with DTV transition.

### SPX Dielectric, Raymond, Maine 1997 to 2005

***Director, RF Systems***

Oversaw all aspects of product line including specification, sales, marketing, design, and testing. Product area accounted for approximately 15% of overall revenue and was awarded a technical Emmy in 2005.

* Managed 12 people in design/drafting department, assembly area, and RF test lab.
* Combiners, filters and switching systems provided to >300 stations

***Director, Advanced RF Development***

Led a small, highly focused Internal Research & Development team for new product designs and ran cost management team that reduced manufacturing costs by >10%.

* Released 11 new products in two and a half years with staff of four.
* Received 8 US patents including Shared Line Tee combiner/splitter. >75 systems installed.

***Sales and Product Manager, Broadcast Systems***

Conceptual design, specification, and sales of broadcast antenna RF systems to OEM and direct customers with market share of 80%. Identified as high potential staff member.

* Quadrupled product line sales from 1997 to 2001 ($3.5M to 14.5M).
* Negotiated prime OEM supplier contracts with broadcast transmitter manufacturers.

### Historic Properties, Deerfield, NH 1995 to 1997

***Licensed Real Estate Salesperson***

Listed, marketed, and sold antique houses throughout NH. Gave presentations on old houses to preservation groups.

### Jampro RF Systems Inc., Sacramento, California 1994 to 1997

***President***

Startup and operation of new division of a broadcast antenna company.

* Sold, designed, developed and manufactured products for OEM and international markets.
* Built and installed waveguide system on world’s tallest self-supported tower in Indonesia.

### T. Vaughan Associates, Manchester, New Hampshire 1993 to 1994

***Engineering Consultant***

Primary technical staff of consulting firm along with the principal engineer.

* Published book on DTV implementation for PBS and National Association of Broadcasters.
* Developed flow-charting methodology for DTV implementation used by PBS stations.

### Passive Power Products, Gray, Maine 1991 to 1993

***Engineering and Sales Manager***

Directed sales and engineering effort for small equipment manufacturer with 25 employees.

* Produced 13 combiners for Australian TV equalization program.
* Developed numerous new products.

### Micro Communications Inc, Manchester, New Hampshire 1986 to 1991

***Director of Engineering***

Design and testing of entire product line.

* Designed and installed first high-power multi-channel TV combiner system in the US.
* Designed and produced the world’s highest power TV transmission system in Kuwait.

# EDUCATION

### University of Lowell, Lowell, Massachusetts 1985

***Bachelor of Science in Electrical Engineering***

Analog, digital, and RF electromagnetics engineering coursework.

### Daniel Webster College, Nashua, New Hampshire 1982

***Associate of Science in Engineering Sciences***

Broad range of mechanical, computer, and electrical engineering coursework.

# INTERESTS

Skiing, Sailing, Flying, Painting, Antiques, Old Houses, Autocross, Amateur Radio.

**OTHER AFFILIATIONS**

* Stroudwater Neighborhood Association
* Association of Federal Communications Consulting Engineers
* Bald Eagle Flying Club Past President
* Maine Preservation
* Owls Head Transportation Museum
* Sail Maine
* Gulf of Maine Ocean Racing Association
* Cumberland Motor Club

**AWARDS AND LEADERSHIP ROLES**

* NAB Television Engineering Achievement Award 2020
* IEEE Broadcast Society Advisory Committee
* IEEE Broadcast Symposium Chair
* SPX Filter team awarded a technical Emmy 2005
* SPX Active Inventor Awards 2005, 2004
* Daniel Webster College Outstanding Student Award
* Tate House Museum Board of Directors

# PATENTS, PUBLICATIONS AND PRESENTATIONS

*“A Nextgen TV future filled with SFN’s”, NAB Engineering Conference 2022*

*“Nextgen TV Implementation and SFN’s”, AFCCE, 2021*

*“Effective Monitoring and Protection Systems for Multiplexed TV and Radio”,* IEEE Broadcast Symposium, 2019

*“TV Repack Update”,* AFCCE, 2019

 *“Adventures in FCC TV Repacking, Broadband Antenna Solutions”,* IEEE Broadcast Symposium, 2017

*“TV Repack Implications on FM Station Operations”,* IEEE Broadcast Symposium 2016 and NAB Radio 2017

US Patent # 6,934,514 *“System for transmitting digital signals with FM signals”, 8*/2005

US Patent # 6,903,624 *“Apparatus and method for shorting waveguide using a pivotable vane structure”, 6*/2005

US Patent # 6,887,093 *“Patch panel latching and holding mechanism apparatus and method”,* 5/2005

US Patent # 6,882,244 *“Switching system for broadcast transmission”, 4*/2005

*“RF System Monitoring”,* Great Lakes Broadcasting Conference, 3/2005

US Patent # 6,870,443 *“Signal separator and bandpass filter”,* 3/2005

US Patent # 6,791,289 *“Intermittent driving mechanism”,* 9/2004

*“Design and Field Results for the Utilization of Circulators in High Power Broadcast Transmission Systems”,* NAB Engineering Conference, 2004

US Patent # 6,617,940 *“System and method for feeding multiple broadcast antennas utilizing a single feed line”,* 9/2003

US Patent # 6,538,529 *“Signal separator and bandpass filter”,* 3/2003

*“Multi-Channel Combiners, Some Real World Examples”,* NAB Engineering Conference, 2000

*“Adjacent Channel Combiners for DTV”,* IEEE Broadcast Symposium, 1998

*“Waveguide or Coax for 1 Megawatt”,* NAB Engineering Conference, 1998

US Patent # 5,774,193 *“HDTV and NTSC Combined for Simultaneous Broadcast”, 6/1998*

*Advanced Television Transmission Systems, NAB/PBS DTV RF System Feasibility Handbook*, T. Vaughan Associates, Public Broadcasting Service, 1995

*“ATV Coverage and RF System Investment Considerations”,* IEEE Broadcast Symposium, 1994

*“An HDTV RF System Feasibility Flowchart”,* NAB Engineering Conference, 1994

*“Happy Coexistence: A Cookbook for Multi-Station TV Combiner Systems”,* Society of Broadcast Engineers Conference, 1992

*“Broadband UHF TV Combiners for the Australian Equalization Program”,* w/ Graham Smith, NAB Engineering Conference, 1992

*“Multi-Channel Combiners; Technology for the 90’s”,* NAB Engineering Conference, 1990

*“Using Super-Power Isolators in the Broadcast Plant”,* Society of Broadcast Engineers Conference, 1989, NAB Engineering Conference, 1989

*“Advanced RF System Measurement Techniques”,* w/ Walter Pries, NAB Engineering Conference, 1989

*“Microprocessor Control of Switchless Combiners, Switching Combiners and RF Systems”,* Society of Broadcast Engineers Conference, 1988

*“UHF Multi-Channel Television Antenna Systems”,* w/ Ernie Mayberry, Society of Broadcast Engineers Conference, 1987, NAB Engineering Conference, 1987