MPF Electronics

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SKILLS SUMMARY

Systems engineering, electronic circuit design, RF circuit design, RF shielding (EMI, EMC, HEMP), nuclear-hardened electronics and integrated circuit design, software programming (HTML, FORTRAN, BASIC, PSPICE, CSMP, MS-DOS Batch), computer security, encryption, software development, export control, and facilities design and construction.

EXPERIENCE

Summary: 30+ years of professional experience that includes electronic circuit design resulting in 7 U.S. patents; nuclear-hardened integrated circuit design; nuclear-hardened systems design; RF shielding; systems engineering; management of software development; export control laws and regulations; cryptography; operations security; and site facilities development.

MAJOR ACCOMPLISHMENTS

- Served as the HEMP, EMI, EMC subject matter expert for the Missile Defense Agency, designing, constructing, and testing missile defense sites worldwide.

- Served as the EMI-EMC subject matter expert on the Battlefield Airborne Communication Node (BACN) which was deployed in the Afghanistan war. Evaluated the performance of the aircraft and its electronic systems and made recommendations to meet their mission requirements for use in the Afghan War.

- Served as the Government's Lead Systems Engineer on the missile Extended-Long Range Air Launched Target (E-LRALT). Helped E-LRALT return to flight after a launch failure in 2009 on a similar missile. Performed system engineering and electronic circuit analysis for the short range (SRALT) and medium range (Juno & MRT) family of target missiles.

- Executed the $10M Fort Greely HEMP (High altitude ElectroMagnetic Pulse) shielding upgrade program within budget, on schedule. Designed a second generation, RF shielding system for interceptor launch equipment that tests proved was significantly more robust than one designed by another company.

- Developed unique facility grounding solutions for Fort Greely, which is built on a moraine, saving the GMD program approximately $5.76M over the life of the program; Saved the GMD program an additional $10M after my suggestions were implemented to simplify the GMD program change control process.

- Served as the program manager to develop nuclear radiation-hardened, large scale integrated circuits for infrared sensors. Saved the Government approximately $125M by specifying a nuclear radiation hardened analog-to-

digital converter that had several integrated functions that previously required separate, discrete integrated circuits.

- Served as the Manager for Electronic Design and Advanced Development, GTE Communications Systems. Saved GTE approximately $10M per year by solving chronic field return problems on two different type telephones by personally redesigning the electronic circuits.

- Designed cable television (CATV) status monitoring equipment including RF and low frequency, wide operating temperature circuits as well as software.

- Developed an algorithm and hardware to automatically tune TV channels offset by up to +/- 3MHz, half a channel bandwidth, a design that is still in use today. Designed analog and digital control circuitry for a TV frequency synthesizing tuner: Phase-locked loops, automatic fine tuning (AFT) loops, custom LSIC development (both MOS and 1.4 GHz ECL). Designed a conventional potentiometer-based tuner control.

- Developed software to automatically align TV intermediate frequency (IF) modules.

- Designed and developed electronic circuitry and mechanical components for anti-skid automotive braking systems.

- Developed new, reduced-order models of systems.

- Developed new computer algorithms to minimize mathematical functions without requiring the calculation of these functions' derivatives.

- Modeled the nonlinear behavior of class-c amplifiers in tuned, RF circuits.

PATENTS

Television Power Supply Turn-on Protection Circuit
Patent Number: 4,656,399 - April 1987

Television Power Supply Shutdown Circuit
Patent Number: 4,641,064 - February 1987

On-Off Arrangement in a Microprocessor-Controlled Remote Transmitter for a Consumer Instrument
Patent Number: 4,544,924 - October 1985

Dual Search Mode Type Tuning System
Patent Number: 4,405,947 - September 1983

Digital Arrangement for Detecting a Correct Television Synchronization Signal Output Useful in a Signal-Seeking Tuning System
Patent Number: 4,364,094 - December 1982

Search Type Tuning System with Synchronization Signal Presence Transition Detector
Patent Number: 4,357,632 - November 1982

Phase-Locked Loop Tuning Control System Including a Sync-Activated AFT Signal-Seeking Arrangement
Patent Number: 4,358,791 - November 1982

PROGRAMS

Aegis Ashore Missile Defense Site in Romania (**AA**) (2012-2014)
Battlefield Airborne Communications Node (**BACN**) – April 2010 – July 2010
JUNO Target Missile (**JUNO**) – July 2010 – July 2011
Extended Long Range Air Launched Target (**E-LRALT**) – April 2010 – July 2010
Ground-based Mid-course Defense (**GMD**) - February 1989 to February 2014
European Mid-course Radar (**EMR**) - August 2008 to September 2009
Integrated System Test Capability (**ISTC**) - April 1999 to March 2003
Patriot Advanced Capability 3 (**PAC-3**) - January 1997 to January 1998
Extended Range Interceptor (**ERINT**) - April 1993 to January 1998
Space-Based Infra Red System (**SBIRS**) - June 1996 to March 2003
Boost Surveillance & Tracking System (**BSTS**) - June 1986 to June 1996
Rad-Hard Electronics (**HPME**) - February 1986 to April 2002

SECURITY CLEARANCE

SECRET Granted February 2011

EDUCATION

Ph.D. - Electrical Engineering
Ohio University-Main Campus – Athens, Ohio - May 1977

M.S. - Electrical Engineering
Ohio University-Main Campus – Athens, Ohio - May 1971

B.M.E. - Mechanical Engineering
Kettering University – Flint, Michigan - May 1969