Wilmer Engineering
RF Systems,EMC/EMI SME, Sr. Project Manager
Huntsville, AL. (June 1993 – Present)

- Wilmer Engineering provides technical consultation in the areas of RF, systems engineering and data communication to include system, subsystem and board level design. Responsibilities include providing technical direction, management and operations of this consulting company as well as consulting to primary clients. Management skills include

• People Management	• Business	• Finance
• Customer satisfaction	• Budgeting and reporting	• Communication
• Organizing	• Leading project teams	• Accountability

A partial list of clients of Wilmer Engineering include

Bombardier Aerospace (Montreal, Canada) Served as an EMC Engineering Specialist, with the Product Development Engineering team designing the new Global 7000 business jet. Responsible to:

- Analyzed new harness designs, assess impact on systems, proposed EMC compliance approaches, write/review test plans, test procedures and test reports,
- Analyzed modifications at aircraft level and checked compliance with certification regulations,
- Supported and witnessed EMC tests in Canada and United States
- Scoped the critical work needed, estimated the time required, planned and executed according to priorities.
- Focus on HIRF, Direct and Indirect Lightning

Advanced Communications & Surveillance System (Phoenix, AZ) – Worked in the hardware sustainability group. Responsible for creating EMI and environmental qualification test procedures for T2CAS (TCAS & TOWS system). Expertise required in DO-160 as well as DO-185 (MOPS for TCAS).

B/E Aerospace - (Bohemia, NY) – For this aerospace client, responsible to conduct EMI tests, write EMI test plans, test procedures and test reports. Used TILE! Version 6 to run DO-160 and Boeing D6-15040 tests. Involved in environmental testing as well as vibration.

Rockwell Collins - (Bloomington, MN) – Worked at an EMC lab providing support for an aerospace client testing a new TACAN radio unit. Emphasis was on HIRF / radiated susceptibility testing. Tested to DO-160.

Pinnacle Wireless **(Fair Lawn, NJ** – Worked on a team to provide LMR/DAS communications to the new World Trade Center. Provided design experience for the Memorial and Museum as well as the Pavilion. Completed, this is the world's largest LMR system.

IDAir (Huntsville, AL) – Provided EMC consulting services for this company as they were working towards Part 90 type acceptance of a biometric fingerprint scanning system.

Nemko USA – (San Diego, CA) – Served as the Sr. EMC Engineer responsible to set up and conduct EMC testing to MIL-STD-461 and DO-160. Also responsible for consultation with clients on EMC issues and writing the final EMC test reports.

Infosys – (Bangalore, India**) -** Developed a white paper on the feasibility and inherent issues of designing a device composed of multiple communication protocols such as WiFi, Bluetooth, ZigBee, GSM and ZWave.

General Dynamics IT – (Huntsville, AL) – Working as part of a new NOC team, responsible to install and configure the Cisco IPICS radio interoperability solution.

General Dynamics SATCOM Technologies – (Duluth, GA) - Responsible for performance testing, validation and verification of an X-band satellite communications system for this major DoD SATCOM contractor.

PacifiCorp Power & Energy (Portland, OR) - For this major utility company that was upgrading their LMR system to a Tait narrowband conventional system, provided site survey engineering for ~60 locations, updating / creating site drawings and providing system design expertise.

ARINC, Inc. – (Annapolis, MD) – For a major railroad communications proposal, served as the Technical Lead Engineer responsible to define the system architecture and migration plan for a 500 site, 10,000 users radio network transitioning from wideband to narrowband (12.5 kHz) and very narrowband (6.25 kHz).

Harris RF Communications Division – (Rochester, NY) – For a new Software Defined Radio for Public Safety applications, responsible for initially analyzing schematics and specifications of the radio. As a Subject Matter Expert designing LMR systems, P25 radios and communications interoperability issues, developed a requirement traceability matrix to insure that compliance was met or issues known with 47 CFR Part 90 and associate rules and regulations. Presented a detailed report summarizing the findings relative to this task.

Goodrich Interiors Lighting Systems – (Oldsmar, FL) – Responsible for the development of DO-160D / E qualification test plans, procedures and test reports relative to testing of the landing lights, taxi lights, Flight Deck interior lighting systems, CANbus and Analog Power Units for the Boeing 787 aircraft. Primary test focus included EMI and Power Quality testing of these units.

Hamilton Sundstrand – (Rockford, IL – Functioning as a RF Test Engineer, responsible for the systems level DO-160 testing of Power Distribution Panels related to the Boeing 787 program. Used Cadence Allegro to analyze EMI design issues and also created a white paper detailing engineering guidelines for mitigating EMI at a circuit card level as it was expected this particular board would have to be relayed out.

Honeywell Aerospace – (Phoenix, AZ) – As a Senior Engineer in the Boeing 787 Flight Control Electronics group, responsible for developing the system level HIRF and lightning test plans and test procedures as well as providing project management for this effort. Required extensive DO-160E test knowledge as well as project management skills interfacing and coordination with Boeing, Rockwell-Collins, GE Aviation and Moog (other companies responsible for manufacturing primary and secondary flight control equipments such as spoilers, elevators, displays, INS, SATCOM, ACARS, high lift actuators, etc.).

The Round Table Group – (Washington, DC) – Recognized as a RTG Scholar, provided expert consulting and research to investment managers as well as support to litigating and intellectual property attorneys on various subjects relative to communication systems technology.

Wulfsberg Electronics – (Prescott, AZ) – Functioned as the Sr. RF Engineer responsible for the EMI and Environmental Qualifications testing of this company's new CVC-151 VHF Transceiver. Involved bench level testing to insure that this radio met the manufacturer's Minimum Performance Specifications and complied with DO-160E, DO-186A and ED-23B (European MOPS).

Conducted testing and worked with VP of Engineering to develop the final test report for TSO approval. Coordinated and conducted MIL-462 performance test measurements of radios at off-site facilities.

4-D Security Solutions - (New York City, NY) – As the Lead Technical Solutions Architect for this division of Sentry Technical Group, tasked for the development of Broadband Wireless systems for Public Safety and Homeland Security applications. Designs included multiple technologies to include the integration of mesh networks, 802.16 / WiMAX (from several manufacturers), RFID / sensor integrations, IP video, VoIP and LMR interoperability solutions.

Sanmina-SCI Defense / Aerospace Division – (Huntsville, AL.) - Served as a Senior EMI/EMC/HIRF Engineer. Responsibilities included writing final test reports per the following standards that the equipment had been tested to: RTCA DO-160D/E, MIL-461E, MIL-462D, HERF/HIRF, Lightning and ESD standards and guidelines.

***inCode Wireless* – *(San Diego, CA.)* –** As a LMR Subject Matter Expert, provided technical & cost consultation related to Nextel's evaluation of the FCC's latest draft of an order for completing a spectrum swap. The final paper submitted to Nextel's CEO detailed Nextel's ability to save over $1 billion on this major project.

Worked as part of a team to develop a detailed white paper for NEXTEL CEO and Sr. Management related to technical, cost and developmental issues of replacing / upgrading the Public Safety LMR systems nationwide as part of the 800 MHz rebanding project.

Responsible for system integration trade studies relative to retuning, reflashing or replacing radios, analysis of labor and related costs required for system integration, installation and drive testing.

Eclipse Aviation Corporation* – *(Albuquerque, NM) – Provided EMI/EMC/HIRF and Lightning Engineering as part of the development of this new ultra light jet (Part 23) aircraft.

Required extensive knowledge of ARINC, RTCA, FAA, MIL and SAE standards to insure that this aircraft met FAA certification. Developed compliance / certification test plans for the above. Responsible for scheduling, selecting and working with outside vendors for EMI/EMC/HIRF and Lightning tests. Witnessed and verified test results.

Recommended design changes as needed to resolve engineering issues and pass certification testing in the above areas. Assigned additional tasks to resolve issues related to RF system design, test and compliance within the aircraft.

Northeast Utilities Corporation* *(Berlin, CT) – Sr. Communications Systems Engineer responsible for designing, planning, costing and implementing the solutions to upgrade the M/A-COM EDACS trunked radio systems for this CT. utility supplier.

Worked with subcontractors, city zone planning commissions, M/A-COM sales and engineering teams, as well as users of the communication network to develop this ***system*** which was part of a multi-state upgrade.

Developed site equipment requirements, equipment room and rack layouts, reconfiguring of frequency plans at sites where required. Developed handheld and portable radio profiles and templates. Responsible to insure multi-site connectivity of systems (via microwave and fiber), propagation studies, terrain analysis.

DynCorp Information Systems' Public Safety and Law Enforcement Group* *(Chantilly, VA) - Functioned as a Project Manager in the PSLE group. Managed the Mobile Office Environment (MOE) design and development, part of the PA. State Police's (PSP) major statewide Incident Information Management System (IIMS) project (M/A-COM's OpenSky system).

Defined the Mobile Office Environment architecture technical design, developed the MOE component requirement specifications, solicited vendor quotes for the individual components and then analyzed and recommended to the PSP appropriate components for procurement related to the MOE.

Generated the Master Project Schedule, Statement of Work, participated in multiple design reviews (providing oral and written presentations) as well as provided technical consultation to the PSP on matters relative to the MOE system architecture and related components. Assisted in proposal development and responses to RFIs. Heavy interaction with public safety and government officials as well as subcontractors required.

Designed and developed system architectures integrating the latest RF technologies including CDMA, CDPD, 802.11B wireless LANs, LMDS, 800 MHz trunked and conventional RF systems, handheld PDAs and pagers, satellite systems and advanced technologies as they related to wireless applications in public safety and intelligent transportation systems.

Developed the proposed architecture for a nationwide APCO 25 compliant 800 MHz, IP-based, trunked land mobile radio network for the Treasury Department (for utilization by Customs, the Secret Service and other Treasury agencies). Defined the primary and secondary system locations as well as integration of microwave, fiber optics and PSTN networks to provide a highly reliable, seamless, redundant radio link providing voice and data capabilities.

Rockwell Collins Avionics ***(Cedar Rapids, Iowa)*** - Served as a Systems Engineer & Hardware Qualification Engineer in the Situation Sensors and Systems Group. Member of the TCAS II and Mode S Transponder hardware design and developmental, system engineering and integration team. Knowledgeable of ARINC 429 and 1553 data buses.

Initially generated the environmental (per MIL-810), EMI/EMC (per RTCA-DO-160, MIL-461 & -462) and HIRF test plans for FAA certification for the Mode S Transponder and Traffic Alert Collision Avoidance System (TCAS II) as designed by Rockwell Collins.

Conducted the environmental, EMI/EMC & HIRF testing of these units per RTCA / MIL-STD requirements as well as compliance with various international specifications that led to FAA certification.

Systems With Reliability, Inc., (Ebensburg, PA.) - Reporting to the General Manager, served as the Director of Engineering. Hands-on design and development of UHF, VHF and FM broadcast antenna systems (slot array antennas, panel antennas, cavity back resonators, batwing antennas, etc.), and related RF components (power dividers, transformers, harmonic filters, etc.). Conducted far field antenna measurements and modeling.

Managed individuals from multiple disciplines and functional groups to complete projects; included Engineering, CAD, test, manufacturing, quality and marketing. Responsible for new business development in international arenas, as well as initial development work in new Digital Television (DTV) Antennas.

East Ohio Gas Company ***(Akron, OH)*** – RF Systems Engineer responsible for defining in detail the infrastructure of the complete EOG system comprised of 40+ individual sites throughout Ohio.

Each site required systems knowledge of telephony, 800 MHz EDACS trunked land mobile radio systems (multi-site, SCAT and single terminal sites), conventional VHF LMR systems, as well as SCADA, FDDI, microwave and PSTN connectivity.

During this period, microwave path analysis and propagation studies (including point-to-point and point-to-multipoint) consulting was provided as EOG migrated from analog to Harris and NEC digital microwave equipment. Required knowledge of FCC licensing issues (relative to 47 CFR 15) & spectrum management of each site, as well as connectivity to the network as a whole.

DRS C3 Systems, LLC – **(Wyndmoor, PA)**

As a Staff Systems Engineer, responsible for the system architecture, requirements definition, design and analysis of C3 and Homeland Security projects involving communication and surveillance systems. Includes integration of IR/EO radar, microwave, 802.11x, IP-based trunked radio systems, ZigBee, mesh networks (Firetide, Strix, BelAir, Tropos, Dust Networks, etc.), 802.16 WiMAX broadband wireless (Alvarion, Motorola, Proxim, Redline, etc.), VHF, UHF, HF and SATCOM (C, Ku, Ka bands) technologies.

Significant focus on communication systems interoperability solutions (ACU-1000, Cisco IPICS, Sytech RIOS, etc.) from the RF / audio level to the networking level. System infrastructure included Cisco 7911 and 7920 wired / wireless VoIP hardware (integrated with CallManager Express), Cisco 3825 routers, Cisco 3560 switch, Cisco Aironet 1310 WAPs and AirFortress 2100 security equipment as part of multiple system configurations.

Responsible to lead project teams, develop requirements traceability matrix, risk assessment, work as part of senior management team on bid captures. Developed schedules, manpower requirements and project costs.

System level work included site surveys for developing system level documentation, propagation studies, link budget analysis, communication room and rack layouts. Developed interconnection documentation and diagrams.

Interfaced extensively with DoD clients, subcontractors, vendors and manufacturers as well as cross-functional teams within DRS to include Business Development and Program Management.

As part of the Thales Radar technology transfer program, responsible for translating system engineering documents from French to English, developing system specifications and evaluating domestic vendors' products for applicability to this program.

***Ericsson – GE* (Lynchburg, VA)**
Sr. Systems Engineer, provided international system level design of 800 and 900 MHz Ericsson (now M/A-COM) trunked radio networks for customers in Taiwan & Thailand. Position required extensive international travel and interfacing with international government, military and public safety officials to include evaluating their requirements and architecting technical solutions. Design activity included site surveys for tower placements, utilizing software for terrain analysis and propagation studies. Analyzed and configured microwave and PSTN connectivity of these locations.

Generated equipment lists (number of repeaters/channels required per site, site controller, multi-couplers/combiners, lightning/EMP protection, power distribution, UPS, antennas, tower loading, etc.). Developed floor and rack drawings. Developed system acceptance test procedures and coverage verification plan. Follow-on activity included proposal development and cost estimates of these $200+ million dollar systems.

Sverdrup Technologies NASA-Lewis Research Center
RF Spectrum Manager and Sr. Communications Engineer, responsible for technical aspects of all RF communication systems at this NASA center (HF, VHF, UHF, SHF, microwave, satellite, FDDI, RF to WAN/LAN interface, etc.). Required extensive RF and data communications knowledge in compliance with NTIA requirements.

Analyzed NASA requirements and redesigned a new trunked mobile radio system. This involved presenting to NASA management an analysis of the present system (conventional LMR) and presenting the concept of a 400 MHz trunked LMR system and the overwhelming advantages of this technology.

Worked with NTIA to develop and submit a viable frequency plan that would support NASA, Cleveland Hopkins Airport and surrounding areas with mutual aid agreements

Conducted technical evaluation (TDMA vs. FDMA) of the Motorola Type II SmartNet (at Wright Patterson Air Force Base) and Ericsson EDACS (at Parma, Ohio Police Department) trunked radio systems.

Generated and submitted to NASA management a detailed Statement of Work for the new system for release of the RFP. Provided the NASA-to-vendor interface during the proposal evaluation and bidding process. Responsible for approving the final acceptance plan. Coordinated with the installation team through acceptance of the trunked radio system. Validated system coverage requirements.

Magnavox Electronics Systems Company (IN and VA)

Served as a research & development design engineer, field engineer (domestic and international), project engineer, qualification engineer, systems engineer and program management staff member for various complex military communication projects (HF, UHF, SHF & EHF, 3 MHz to 42 GHz).

Performed board level design of RF, microwave, digital and analog circuitry. Extensive knowledge gained in transmitter, receiver & synthesizer design, frequency hopping and direct sequence spread spectrum techniques and power distribution.