

Anthony Wesley Laine Ph.D.
21 Dover Street
Tom's River, New Jersey 08753
(732) 736-0339-Home
email address anthony.w.laine@verizon.net

OVERVIEW

Have over 25 years of engineering experience, and development background. Have experience in EMI/EMC/HIRF, Aircraft Avionics, and Research and Development. Have experience in design and verification of digital, and mixed signals. Am a high-energy, experienced, and my career and academic work has focused on developing and implementing state of the art avionics. Have frequently been a key part of or have managed innovative, pioneering teams within large corporate structures, and have the ability to navigate within and between small business cultures and large bureaucracies. Above all I support my Managers 1,000%. The following is how I support my Managers

Teams that work together can out-perform groups that are merely together working. One-man shows never win battles, one-man shows cannot compete against an effective team group, and one person, cannot know all of the answers. To have an effective team workplace everyone must know his or her part in the scheme of things. Everyone must know his or her role in the grand scheme. From the shop floor to the Director, creativity is a sure-fire performance enhancer. Individuals learn to work more effectively as a team when problem solving, brainstorming, and taking responsibility for the results. Persons who work as a team, share information, takes responsibility, and who use each other's skills, and knowledge are more productive and motivated.

SUMMARY

General Aircraft

Airbus A319/A320, Boeing 737/757, Sabreliner T-39 A, B, D, E, and N, 40, 60, 65, 70, and 80, Citation II, III, V, Beech 400A, Falcon 50, Hawker 800, Challenger 601, and the Gulfstream IV.

Helicopters:

AGUSTA AB-139, CHH-53, V22, Sea Stallion, OH-58D, and the UH-60 (Blackhawk

Military Aircraft:

F-16, B1-B, F117, B52H, LAVI, various C-130's, and the KC-135.

Missile Programs

Experience on the SRAM, and the Peacekeeper missile programs.

FAA FARs

Have FAA FAR 21, 23, 25, 43, 91, 121, 135, and 145 experience:

Aircraft Certification Experience

Write Reports for FAA/JAA approval on redesigned aircraft. Write Certification Plans, Compliance Reports, Flight Test Plans/Reports, EMI Test Plans/Reports, Ground Test Plans/Reports, ESD Test Plans/Reports, Pitot Static Test Plans/Reports, RVSM Test Plans/Reports, Compass Deviation Test Plans/Reports, Load Analysis Reports, Failure Mode and Effect Analysis Reports (FAA FAR 25.1309), Maintenance Plans, and Airplane Flight Manual Supplements (AFMS).

Have done (73) STC's, and TSO's for the following:

Cockpit Voice Recorders, Flight Data Recorders, Color Weather Radar, Air Data Computers, Flight Controls, Electrical Systems, RVSM, Navigation, Autopilots. Navigation Management Systems, Flight Management Systems, Flight Maintenance Systems, MAGNASTAR, GPS, SATCOM, TCAS I-II, and Change 7 for TCAS II, Airshow, EGPWS, NZ-2000, AHRS, and UNS-1C, 1 D, 1 K, 1 L, 1 MSP, In Flight Entertainment Systems, Galleys, aircraft interior, and exterior lighting, etc.

Spacecraft

GOES Satellite Program specifications for space radiation effects. Modeled for a Single Event Upset (SEU) and Total Ionizing Radiation.

Wrote a 300 page book with Dr. James A. Van Allen on EMI, power supply analysis, algorithms, modeling, x-y-z axis, and cable harnessing on satellites this is just for our own edification.

Wrote the Space Station Study for NASA in 1984. This study included plasma effects, spacecraft charging, EMI, solar collectors, electron and proton interactions.

Patents

Have (10) patents that I did for Corporations (1985) Rockwell International "Laser Imaging Radar", "Composite Housing", "Magnetic Material", "Composite Sheets", "Baffles for Aircraft's", "Computer for automobile". (1984) Sundstrand Corporation, "Protective Coating against Electromagnetics", (1987) Unidynamics Corporation, "LIDAR", (1995) I.T.T. Corporation, "Night Vision Patent", (1995) "No Lock On-Pulsed R.F." gave this to the United States Government. Now working on a Radar patent for automobiles for myself.

Book/White Papers

Have written many books/white papers on Nuclear, Electromagnetic Effects, and Nuclear Hardening.

Primary Areas of Expertise

- Preparing FAA EMC/Lightning control plans, test plans and test reports using the requirements of FAA-AC20-136, DO-160C, and DO-160D.
- Environmental Tests on Aircraft Avionics (EMI/EMC, ESD, HIRF, Lightning, EMP, Temperature and Vibration).
- System Level EMC Tests on Aircraft.

- Excellent working knowledge of electromagnetic field theory & fundamental circuit concepts.
- Lightning protection of aircraft structures. Indirect effects lightning testing and analysis.
- Word Processing Skills (Word, Excel, and PowerPoint).
- Calculation of power density and electric field levels emitted by aircraft antennas.
- Electrical Bonding and grounding of aircraft structures.
- Layout of Mother Board's, and Printed Circuit Board's.
- SPICE circuit analysis.

Technical Writing

User Manuals

- * Product Manuals
- * Installation/Maintenance Manuals
- * Operating Manuals
- * White Papers
- * Proposals/Contracts
- * Data Sheets/Marketing Materials
- * Mil-Spec Documentation

PROFESSIONAL EXPERIENCE:

January 2002-Present

Lear Siegler Services/EG&G Inc.

Naval Air Warfare Center-Aircraft Division (NAWC-AD)

Lakehurst, New Jersey 08733

Consultant Senior E3 Engineer-Test Director

Write MIL-STD 464/MIL-STD 461 EMI Test Plans, EMC Test Plans/Reports, Lightning, Flight Test Plans, Preflight Test Plans, Installation Acceptance Test Plans, EMC Test Reports, Flight Test Reports, Electrical Load Analysis, and Antenna Analysis for various C-130 aircrafts, UH-60, and OH-58D helicopters. Do MIL-STD 464 EMC Testing on C-130 aircrafts, and OH-58D helicopters. Design avionics integration for Helicopters, and C-130's using Auto Cad 2002. MIL-STD-464 EMC testing included FLIR, ETCAS, LPCR, Night Sun, CUGR, SCNS, Transponders, etc.

Prepared proposals.

August 2001-September, 2001

America West Airlines

Phoenix Sky Harbor Airport

Phoenix, Arizona

Flight Operational Quality Assurance ("FOQA") Avionics Consultant

Flight Operational Quality Assurance (FOQA) data is used from flight parameters in order to find potential problems and correct them before they lead to accidents, records, and analyzes flight parameters (such as firm landings or high decent rates). Data is collected to determine whether the aircraft is deviating from standard procedures or operating limitations, and recorded by the OQAR.

Wrote an Engineering Order E.O. to have the America West Airbus A319 and A320 fleet of aircraft's to have Continuous Operation of the Optical Quick Access Recorder (OQAR). This was GSE software. So that OQAR when the Optical Disk is full of data it does not trigger a light in

the aircraft cabin. This problem has led to delay flight time of aircraft's, before a new optical disk could be installed in the OQAR.

This E.O. also contains software functions to include Tail Numbering, and Time and Date in GMT. Wrote a very detailed report on where the Airbus A319 and A320, the Boeing 757 aircraft's get their recording parameters. Did (30) slides in Power Point software, for a Management Seminar on the FOQA program. Wrote an E.O. for the Boeing 757 fleet.

The A319 and A320 Airbus Data Management Unit (DMU) accepts data from inputs to perform aircraft/engine and flight-performance monitoring and analysis. The DMU is programmed to monitor critical data and compare those data values to pre-defined normal, operating limits. In the event that an engine or other aircraft parameter is out of those defined limits, an exceedence condition exists, and a report is triggered. The report includes all available relevant aircraft and engine information associated with the exceedence, the content of which is defined by the airframe and engine manufacturer, and the operator. The DMU also provides a continuous raw, aircraft-data output to the Optical Quick Access Recorder (OQAR) in the DAR position. The DMU is capable of channeling the aforementioned raw formatted reports or data files for output to an OQAR. The OQAR receives data from the DMU, Solid State Digital Flight Recorder (SSDFR), Aircraft Integrated Data System (AIDS), Centralized Fault Display Interface Unit (CFDIU), and the Flight Data Interface Unit (FDIU). The data from all of the reporting avionics are recorded by the OQAR on an optical disk. Data from the above avionics is in ARINC 429, 573, 591, and 717.

Data is down linked via the Aircraft Communications Addressing and Reporting System (ACARS), Data Link system for near real-time transmission to the airlines ground-based maintenance system.

The Boeing 757 model Flight Data Acquisition Management System (FDAMS) acts as the central processor for the remotely distributed sensors, discrete inputs and data-busses. As one of its outputs the FDAMS is programmed to monitor critical data and compare those data values to pre-defined normal, operating limits. In the event that an engine or other aircraft parameter is out of those defined limits, an exceedence condition exists, and a report is triggered. The report includes all available relevant aircraft and engine information associated with the exceedence, the content of which is defined by the airframe and engine manufacturer, and the operator. The Solid State Digital Flight Recorder (SSDFR) and the (FDAMS) has a flow of raw, aircraft data outputs to a PCMCIA card. Data from the above avionics is in ARINC 429, 573, and 717

November 20, 2000 to July 20, 2001
Honeywell Inc.
5355 West Bell Road
Phoenix, AZ
Electromagnetics Consultant

Used Microsoft Word 98, 2000, Excel, Pagemaker, Powerpoint, and Labview software. Performed EMI analysis on the AGUSTA AB-139 Helicopter EPIC Modular Avionics Unit (MAU). BCI testing, bench setup, EUT monitoring, Current Probe selections, RS testing, Current Probe calibration, Radiated Field calibration. Designed test setup for DO-160D Section 5 for Temperature Variation, Section 8 for Vibration, and Section 20 for Radiated and Conducted Susceptibility (HIRF). Did DO-160D testing as below for the AGUSTA AB-139 EPIC MAU. Section 5 was for -55°C to $+80^{\circ}\text{C}$. Section 8 was for 3.36 G's RMS for operating, and 4.75 G's RMS non-operating. Section 20 was for 2 MHz to 400 MHz for Conducted (BCI) (AM/CW), and

400 MHz to 3 GHz (AM/CW) Vertical/Horizontal (Category W). This was abbreviated testing. Also did Category M Emission testing.

Did the following technical writing for this project:

- Project management plans
- Project charters
- * Business requirements documentation
- * Design documentation
 - System documentation
- * Status reports
- * Executive presentations
 - Test report documentation
 - Test plan generation
 - Signal Integrity Simulation of Modules

4/12/00 to 7/2000

InAir Inc.

Chesterfield, MO.

Aerospace/Avionics Consultant

Write the specifications for commercial and military aircraft. Used Microsoft Word 2000, Excel, Pagemaker, Powerpoint and AutoCad 14

4/1997 – 1/2000

Sabreliner Corporation

St. Louis, MO.

Senior Avionics Electrical Engineer (Direct)

Design interface controls on various aircrafts. Write Reports for FAA/JAA approval on redesigned aircraft. Write Certification Plans, Compliance Reports, Flight Test Plans/Reports, EMI Test Plans/Reports, Ground Test Plans/Reports, ESD Test Plans/Reports, Pitot Static Test Plans/Reports, RVSM Test Plans/Reports, Compass Deviation Test Plans/Reports, Load Analysis Reports, Failure Mode and Effect Analysis Reports (FAA FAR 25.1309), Maintenance Plans, and Airplane Flight Manual Supplements (AFMS).

Have done (73) STC's, and TSO's for the following:

Cockpit Voice Recorders, Flight Data Recorders, Color Weather Radar, Air Data Computers, Flight Controls, Electrical Systems, RVSM, Navigation, Autopilots. Navigation Management Systems, Flight Management Systems, Flight Maintenance Systems, MAGNASTAR, GPS, SATCOM, TCAS I-II, and Change 7 for TCAS II, Airshow, EGPWS, NZ-2000, AHRS, and UNS-1C, 1 D, 1 K, 1 L, 1 MSP, In Flight Entertainment Systems, Galleys, aircraft interior, and exterior lighting, etc.

Tested the software integration of the new avionics in ground, and flight tests. D0-178B, redesigned Flap Actuator Module for Sabreliner aircraft 60, 65, 70, and 80 models. Designed interface controls for RVSM and developed reports for FAA approval on RVSM program.

On RVSM developed (73) Reports. Redesigned outdated electronic controls that could not be purchased anymore. Designed controls for the interface with the autopilot. On a very special test

aircraft T-39G for Edwards AFB, CA took out the hydraulic driven electrical generators. Inserted a 10KVA electrical inverter. Did the Load Analysis for this special aircraft.

Used Microsoft Word 95, 97, 98, 2000, Excel, Pagemaker, Powerpoint, Special software for Graphics for the AFMS's, MathCad, and AutoCad 12, 13, 14 and 2000.

1/1/96 – 10/1/96

Royal Canadian Government
Ontario, Canada
Electromagnetics Consultant

Performed EMI analysis on C-130 Aurora/Arterus/Hercules Surveillance Aircraft using RTCA, DO-160C, and D, MIL-STD 461D and 462D. Performed HIRO, and HIRF analysis. The electromagnetic levels had to be verified used MathCad, Spice Software, and a Special software written specifically for antennas.

6/1993 – 12/1995

I.C.S. Radiation Technologies, Inc.
Downey, CA
Consultant to the President

Wrote books on EMI, RF, pulsed RF, satellite, Heads up Display, and power supply analysis, algorithms, modeling, x-y-z axis, and Cable harnessing.

1/1990 – 11/1992

Rockwell International
Downey, CA
Electromagnetics Consultant

Performed EMI analysis and various writing tasks for the updates of the B1-B Aircraft using MIL-STD 461 and 462, RTCA, DO-160, MIL HBK-235, 6051 and 5087. Performed lightning, ESD, grounding, bonding HIRF, HIRO, and EMI analysis on Heads up Displays.

4/1987 – 11/1989

Unidynamics Corporation
Litchfield Park, AZ
Electromagnetics/Nuclear Consultant to the President

Performed EMI, EMP, RF, ESD and bonding analysis of the PDSU and MSAD for the SRAM II Missile. Performed the EMI/EMP analysis on the enclosures, circuitry and cabling. Conducted lightning analysis on the enclosure, MIL-STD 1512 RF analysis on the EED's, and bonding resistance analysis on both. Wrote the EME Control and Test Plans for the above program. Wrote a Nuclear Hardness assurance Plan, and conducted EMI, and RF analysis on a laser program (LIDAR), and helped to develop this patent.

10/1986 – 4/1987

ITT Corporation
Fort Wayne, IN
Space Radiation Consultant

Evaluated the GOES Satellite Program specifications for space radiation effects. Modeled for Single Event Upset (SEU), and Total Ionizing Radiation.

7/1984 – 10/1986

Sundstrand Corporation

Rockford, IL

Electromagnetics/Nuclear Consultant

Wrote a 5,000 page nuclear hardness report on TRE and EMP, and a nuclear hardness assurance plan. Performed an EMI/EMP enclosure analysis, HIRF, HIRO, HEMP etc. transfer impedance analysis. Wrote a space station study, which included plasma effects, spacecraft charging, EMI, solar collectors, electron and proton interactions, and EMP. Worked on the documentation for forty Nuclear and EME programs. Wrote nuclear test reports on fiber optics, and semi-conductors. These projects were performed in support of the B1-B, F117, B52H, LAVI, KC-135, and other Black/Missile Programs. Worked in the Research and Development Division to develop two patents on coatings. Wrote the specification for the V-22 Helicopter.

1982-1984

Teledyne Corporation

Northridge, CA

Electromagnetics/Nuclear Consultant to the President (Mr. Robert Steenberge)

Did the Electromagnetic/Nuclear on missile, and aircraft programs.

1980-1982

Corporation, cannot remember the name-Allied Signal bought it, and it became Allied Signal

El Segundo, CA

Electromagnetics Consultant

Did the Electromagnetic on the B-1B aircraft.

1977-1980

Rockwell Corporation

El Segundo, CA

Electromagnetic/Nuclear Consultant

Did the Electromagnetic/Nuclear on the B-1B aircraft.

ADDITIONAL PROFESSIONAL ACTIVITIES

Worked at various Corporations of EMI/EMC, HIRF, ESD, lightning, EME, TRE, RF, integration, design, analysis, thermal, materials, space effects, and pulsed RF for tactical space projects. Wrote the Space Station Study for NASA. Worked on research and development programs, computer analysis, and modeling on various projects. Worked on laser programs, failure mode effects analysis, avionics, and digital signal processing, TEMPEST, simulation and algorithm development.