
Patrick Keane

Radio Access Network
Engineer

profile :

Radio network planning and optimization for **2G/3G/4G** voice and data protocols since 1996. Over 20 years experience with operation and deployment of computer, radio transceiver and telecommunications systems.

background :

technologies	activities	applications
<ul style="list-style-type: none">• LTE• WCDMA/UMTS• cdma2000/1XRTT• IS95/IS95B• GSM1900• EVDO• AMPS	<ul style="list-style-type: none">• RF planning / propagation• pre/post launch optimization• operations/performance KPI's• features, FOA's, upgrades• strategic planning and deployment	<ul style="list-style-type: none">• NSN• Ericsson• Nortel• Lucent

education:

BSEE 3.5/4.0	Rutgers University	New Brunswick, NJ
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military:

US Navy	1986-1992	FC1 (E-6) Fire Control Technician (Combat Systems Missiles)
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PROFESSIONAL EXPERIENCE HIGHLIGHTS

- **Initial system radio planning:** morphology/geography and CW radio propagation studies, search ring generation, site candidate analysis, base station location and configurations, antenna system testing and specifications, link budget and prediction model tuning
- **Network operation and optimization:** system level configurations of radio resource, mobility management and call management parameters, mobile data collection, call performance and statistical trending for grade of service analysis
- **Future planning and network growth:** initiate and expand customer service areas, forecast usage and subscriber growth, develop special applications (arenas, airports, subways, stadiums, etc)

PROJECT AND EMPLOYMENT HISTORY

RAN Engineering Consultant	PCS / AWS / 700
Jan 2013 – Present	T-Mobile
Sunrise, FL	
<ul style="list-style-type: none"> ○ Search Ring generation and candidate review ○ RF Propagation and network planning analysis ○ Cell-site design and antenna layout configurations ○ Network database configurations and E911 provisioning support ○ Review of construction and A&E drawings as related to antennas and equipment placement ○ Field surveys of existing and potential cell site locations including measurements and reporting 	
RAN Engineering Consultant	PCS / AWS
Sep 2011 – Jan 2013	T-Mobile
Sunrise, FL	
<ul style="list-style-type: none"> ○ Direct vendor for radio network access site development and operational support ○ Field survey and post processing with TEMS Pocket / TEMS Investigation ○ Micro / pico cell design and optimization using repeaters, passive/active DAS, ipBTS and hybrid systems ○ Fourth sector additions and antenna system design and optimization ○ Sales support through GIS and operational KPI analysis and presentation ○ Special events planning and site design, launch and monitoring 	
RF Engineer HS+42 Optimization	PCS1900 / AWS 1700-2100
May 2011 – Sep 2011	T-Mobile
Sunrise, FL	
<ul style="list-style-type: none"> ○ Dual Carrier, HS+42 launch deployment ○ KPI analysis and optimization of CS/PS Call Drop, CS/PS Call Access Failure, BLER, RSCP, Eclo and Rx/Tx power ○ Adjacency tuning and multi-carrier support and provisioning ○ Drive data analysis of interference, coverage and pilot pollution, poor/no/over coverage, missing neighbors, Soft/Hard/Intra- and inter frequency handover ○ Advise/coordinate UMTS/HSPA optimization teams (analysis engineers and field data collection) ○ Troubleshooting HSPA packet drops and application layer session throughput to improve packet performance. 	

<ul style="list-style-type: none"> ○ Perform design planning simulations to support downtilt, azimuth and CPICH optimization ○ Site survey and field measurements 	
RF Engineer GSM/UMTS Deployment	PCS1900 / AWS 1700-2100
Jan 2011 – May 2011	T-Mobile Sunrise, FL
<ul style="list-style-type: none"> ○ 2G/3G RF design and performance engineering ○ Site survey and configuration proposals ○ Monitor KPI metrics and network performance parameters ○ Optimize and troubleshoot network coverage and performance issues ○ 4 sector and micro-cell design and deployment ○ Deployment support and assistance ○ GIS support and sales data analysis 	
RF Engineer HSPA+ Launch Optimization	PCS1900 / AWS 1700-2100
Sep 2010 – Dec 2010	T-Mobile Sunrise, FL
<ul style="list-style-type: none"> ○ Analyze RF drive data and recommend electrical tilt and antenna azimuth changes in support of CQI enhancements ○ Optimize and troubleshoot network coverage and performance issues ○ Monitor KPI metrics and network performance parameters for cluster drive acceptance ○ Log data integrity checks, RAN parameter and consistency checks and feature implementation. ○ NSN infrastructure 	
RF Engineer Radio Network Planning	PCS1900 / AWS 1700-2100
June 2010 – Sep 2010	T-Mobile Sunrise, FL
<ul style="list-style-type: none"> ○ Monitor KPI metrics and network performance parameters ○ Optimize and troubleshoot network coverage and performance issues ○ Address customer complaints ○ Deployment support and assistance ○ GIS support and sales data analysis ○ Data collection post processing and site launch support ○ NSN infrastructure 	
UMTS RAN Engineering Consultant	AWS 1700-2100
	T-Mobile

Nov 2009 – Dec 2009	Sunrise, FL
<ul style="list-style-type: none"> ○ UMTS technology training and planning ○ Radio Access Network (RAN) CIQ preparation and validation ○ Nokia OSS datafill auditing and neighbor adjacency generation ○ Scrambling Code planning for UMTS deployment ○ 2nd carrier nodeB configuration planning and datafill verification ○ TEMS drive test equipment training and data throughput configuration and testing ○ Data collection post processing and site launch support ○ NSN infrastructure 	
UMTS Design/Optimization Engineer	AWS 1700-2100
	T-Mobile
Oct 2006 – Sep 2009	Plantation, FL
<ul style="list-style-type: none"> ○ UMTS/GSM performance monitoring and optimization using KPI targets for RF actions and planning ○ UMTS pre/post launch tuning including antenna tilt and parameter recommendations ○ Pre-launch datafill auditing and neighbor adjacency generation ○ Construction close out validation including sweep test and remote tilt (AISG 2.) configuration/verification ○ Scrambling Code planning for UMTS deployment ○ Asset 3G site and cluster RF analysis and macro development for data integrity audits and KPI achievement ○ Site Audit and UMTS/GSM antenna overlay designs, construction support NSN UMTS / Ericsson GSM ○ NSN infrastructure 	
Model Tuning Team Lead	PCS 1900 / AWS 1700-2100
	T-Mobile
Jun 2006 – Sep 2006	Plantation, FL
<ul style="list-style-type: none"> ○ 1900 PCS propagation model definition with extrapolation to 2100 MHz AWS ○ CW data collection and project planning ○ Tuning and validation ○ Model integration and implementation 	
Principle RF Engineer	AWS 1700-2100
	Cingular
Oct 2005 – May 2006	Boca Raton, FL
<ul style="list-style-type: none"> ○ UMTS RF Design planning with Asset 3G simulation software 	

- o Propagation analysis and RF database maintenance
- o Traffic cell spreading and monte carlo analysis
- o Iterative system design optimization with Optimi ACP tool
- o Project summary and analysis for launch strategy support
- o Neighbor adjacency generation and tuning
- o Scrambling Code planning and strategies

CDMA SME

PCS 1900

Alvarion

July 2005– July 2005

Miami, FL

- o CDMA repeater performance analysis and testing
- o Optimization and OA&M
- o Alvarion equipment vendor for shipboard repeater deployment

Principle CDMA Performance Engineer

PCS 1900

Sprint, PCS

Sep 2004 – July 2005

Miami, FL

- o CDMA2000 Performance Engineering, EVDO datafill and data collection verification
- o Cell site HW and SW change recommendations
- o New feature testing and implementation
- o Propagation analysis and testing
- o KPI development and analysis
- o Statistical trending for grade of service evaluation
- o Nortel Infrastructure - BSC,BTSC,BSM (O&M)

Senior CDMA Performance Engineer

PCS 1900

Sprint, PCS

Apr 2004 – May2004

Jacksonville, FL

- o Lead RF for Nortel inter-system rehome of client market
- o configure inter-system handoff borders
- o post process and analysis of drive test data and system audit files
- o Nortel Infrastructure - BSC,BTSC,BSM (O&M)

Senior CDMA Performance Engineer

PCS 1900

Cellular South

Nov 2003 – Apr2004

Mobile, AL

- o CDMA2000 System launch optimization
- o Cell site HW and SW change recommendations

- System datafill auditing
- Propagation analysis and testing
- KPI development and analysis
- Statistical trending for grade of service evaluation
- Nortel Infrastructure - BSC,BTSC,BSM (O&M)

UMTS RAN Tuning Engineer

PCS 190

Hi3G

Oct 2002 – Jun 2003

Stockholm/Göteborg - SE

- 3G System launch optimization
- Cell site parameter recommendations including antenna tilts, neighbor adjacencies and DGU settings
- System datafill auditing
- Propagation analysis and testing
- KPI development and analysis
- Statistical trending for grade of service evaluation
- Ericsson Infrastructure - UTRAN and RAN,RANOS,EMAS

Senior CDMA RF Services Engineer

Nortel Networks

May 2000 – Sep 2002

Sunrise, FL

- 1XRTT trials for MTX10 customer cdma2000 launch
- 1XRTT acceptance testing including layer 3 and call flow tracing, datafill configurations and analysis
- Radio Link Protocol testing and optimization via PPP session management and call sequence analysis
- CDMA network feature testing including Nortel FIT and FOA customer acceptance trials.
- cell site base station verification and integration
- System datafill auditing
- CDMA carrier addition and overlay
- OM statistical trending and analysis

Senior CDMA Design Engineer

Verizon

Jun 1998 – May 2000

Boca Raton, FL

- RF coverage planning for PCS system launch and expansion
- System frequency and scrambling code planning
- Mobility parameter management and optimization
- Base station power output and control
- KPI development and analysis
- Statistical trending for grade of service evaluation
- Lucent Infrastructure - ECP, Flexent, apxrcv, fci, OMP (O&M)

CDMA Design Engineer	Sprint PCS
Nov 1997 – Jun 1998	Plantation , FL
<ul style="list-style-type: none"> ○ RF coverage planning for PCS system launch and expansion ○ System frequency and scrambling code planning ○ Mobility parameter management and optimization ○ Base station power output and control ○ KPI development and analysis ○ Statistical trending for grade of service evaluation ○ Nortel Infrastructure - BSC,BTSC,BSM (O&M) 	
RF Design Engineer	Bell Atlantic Mobile
Jun 1996 – Nov1997	Branchburg, NJ
<ul style="list-style-type: none"> ○ AMPS and CDMA cell site planning and engineering ○ System frequency and scrambling code planning ○ Mobility parameter management and optimization ○ Base station power output and control ○ Statistical trending for grade of service evaluation ○ Lucent Infrastructure - ECP, Flexent, apxrcv, fci, OMP (O&M) 	

Education

- B.S., Electrical Engineering (May 1996) Rutgers University, New Brunswick NJ (GPA: 3.5/4.0)

Military

- US Navy 1986-1992 FC1 (E-6) Fire Control Technician (Combat Systems Missiles)

Amad Motazedian
RF Engineer
Sunny Isles Beach, FL
07.14.2021

US Citizen

PROFESSIONAL SUMMARY

Innovative professional with 22+ years of progressive experience in Wireless Communications industry with abilities in RF engineering and project management.

Hands on experience in RF Macro /Inbuilding Design, Implementation and Optimization of CDMA, EVDO, LTE, VOLTE and 5G network systems.

Worked on multiple vendor equipment's (Ericsson, Nokia) through working directly with vendors or Wireless Service Providers (Sprint, T-Mobile).

Designed New Macro Sites utilizing solid understanding of ATOLL in Ericsson environment. LTE design for Sprint, T-Mobile, Miami, FL, and issued RFDS/CIQ based on existing HW/Spectrum on Ericsson, Nokia LTE.

Working with team for ATP/MIMO and VOLTE cluster acceptance Call setup SIP, Jitter etc. Screening and supporting Engineers for VOLTE optimization for various markets. Drive test data analysis using TEMS to address handover failure and call drops issues. Designed cRAN/Small cells nodes using Atoll/ACP/IQI/Google Earth for capacity growth/5G.

LTE/CDMA RFDS & RNDCIQ for Miami and SW Florida markets.
Microwave link design for macro sites.

Education

[June 2001] Barry University Miami Shores, Florida
B.S. Telecommunication

WORK EXPERIENCE

RF Design Engineer Sprint, Ericsson, T-Mobile Aug 2013 up To Date

Performed RF Data Analysis & Pre-launch Optimization of LTE 1st and 2nd Carrier network at Miami Market. Troubleshoot Wireless networking and hardware issues with LTE network, also responsible for Drive Routes, initial neighbor lists planning and IFHO (Inter frequency handover).

RF Design consultant Ericsson Aug 2009, Aug 2013

LTE led design and testing 3 years' experience.
Having good experience in UE Conformance and Functional Testing.
Good knowledge in LTE (RLC, MAC, RRC).
Good understanding of complete end to end wireless network architecture.
Worked on Rohde & Schwarz GCF test cases on basis of 3GPP 36.523.

RF Design Engineer 2006, Aug 2009

*CDMA Planning, integration and prioritization of all 2006 approved build sites according to the plan

of record.

- * Performed detail RF Survey, Site Selection, Coverage Prediction,
- * RF coverage planning, clutter Survey, LOS survey, site identification and evaluation according to CDMA 1x RTT Network standard
- * Designed search rings and located new candidates for cell sites using Planet EV (Transmitter, Antenna, Propagation Model and Link Budget information)
- * Establish contacts and worked closely with site acquisition managers.
- * Prepared various propagation plots, including plots for forward link coverage, Reverse link coverage, Handoff scenario, Pilot Dominance.
- * Extensive use of MapInfo with mapping in layers
- * Rooftop/Communication Tower Antenna Design with different mounting techniques to meet RF specifications, antenna Azimuth/Tilting/Orientation and cable length considerations.
- * Created CET (Coverage planning Tool) in coordination with marketing team to locate the expected subscribers and the signal penetration levels.
- * Calculating Link Budget: System Loss, PA power, Cable Type/Loss to come with the desired Transmitted EIRP to minimize interference.
- * provided back-office support to CDMA project.
- * Daily maintenance of database in terms of approved and rejected sites with all the details specified. Managed and implemented PN retune from Inc 4 to 3 for Miami Market.
- * Investigated interference issues throughout Miami market with Agilent, Wiltron, and Advantest Tektronic Spectrum Analyzers.
- * Investigated Various EVDO scenarios for performance and data throughput and capacity issues.

1x EVDO Optimizer

- * Worked on 1xEvDo Optimization project
- * Undergone training programmed by Award solutions on understanding 1xEVDO fundamentals & stage wise call Flow.
- * Handled RF Optimization & performance responsibility of 3 RNC, which included 330 sites.
- * Daily analysis of Kips for EVDO Network on sector basis, which includes locating high runner for drop call and Access failure.
- * Optimized sector with worst stats using TPTL, Neighbor Tuning.
- * Analyzed test results for mobility and stationary conditions in Uplink & Downlink modes in terms of C/I levels and Average throughput.

RF Performance Engineer CDMA Oct 2003 to June 2006

- * Oversaw and performed all aspects of initial RF System Wide Optimization.
- * Collected Drive test data using Grayson and Nitro(Agilent Tool). Analyzed drive route plots using Actix(Agilent Tool), Made problem-solving decisions necessary for efficient network operation
- * Performed sector functionality and handoff test prior to individual cluster optimization in a multiple carrier scenario.
- * Re-assigned CDMA Pilot PN-s and retuned neighbor list
- * Recommended and implemented new antennae, including: Down tilt (electrical & mechanical), re-orientation (azimuth and/or height) and beam width specifications.
- * Observe network functionality through the use of drive data & service measurement data
- * Initial pre-optimization and post optimization neighbor list configurations
- * Responsible for on-going network growth, coverage expansion and optimization.

- * Integrated new cells into the existing network
- * provided weekly reports on network improvements as result of network optimization
- * Performed In-building coverage survey at hotspots in important Towns.
- * Complete Indoor Coverage planning for important buildings using indoor Repeaters which includes link Budget calculations, Cable length calculations, Indoor and outdoor antenna selections and their optimum utilization.

Optimization Specialist, Senior optimization specialist 2000--2003

I was Responsible for Network Optimization, Performance Analysis. Possess complete understanding of CDMA 1XRTT architecture, database parameters and Radio network performance. Possess in-depth understanding of Nortel algorithms pertaining to Power Control, Handoff, Load Management, Access and Paging channel handoffs, Rate overload and Capacity overload algorithms. Good understanding of Voice as well as Data Call Processing.

RF Field Tech 1997--2000

During the initial two years at sprint as RF field tech I was also involved in installation, commissioning and testing of CDMA CELL Site of Nortel Technologies. Conducted CW Drive Test for model tuning. Installation, Commissioning, Testing and Maintenance of CDMA Network.

SKILLS

- * Thorough knowledge of LTE, CDMA Fundamentals, Moderate knowledge of GSM Logical and Physical Channels, Forward and Reverse link, Power Control, Mobile parameters, Call Processing, Handoff Analysis, Dropped Call Analysis, Propagation Models, Antenna Fundamentals, RF Planning Parameters i.e., Fade Margin, T_Add, T_Drop, T_Comp. Translation setting i.e. CDHNL, CDHFL. Network Parameters E_c/I_o , E_b/I_o etc. Link Budget Calculations
- * PN offset planning issues (Delay spread and the Multipath Environment, Rake Search Window, PN offset interference and Design criteria)
- * MAPINFO GIS Tool.
- * Propagation and RF design tools: Wizard (Agilent Tool).
- * RF collection and post processing tools: Nitro, Actix(Agilent Tools), wind catcher, Grayson Invex, Interpreter
- * SW Proficiency -> O S -: DOS, WINDOWS 95/98/2000, MS Office, C and C++. BSM navigator, ProComm plus, CACP, SMS, Facts

Certifications: TRAININGS UNDERGONE

- iDEN Network Overview
- Completed Introduction to Cell Opt ACP Actix training program
- Completed Planet EV 4.2 training course
- Intro to CDMA 2000 1X EVDO Technology
- CDMA Access Configuration and provisioning
- Optimization 1X technology
- PCS Parameters compliance process training
- CDMA 3G Data and Capacity Solutions
- CDMA 3G technology overview
- CDMA 2000 3Xrtt
- Intro to 3G Systems the Technologies

- CDMA 2000 1Xrtt
- Introduction to Analyzer for network optimization
- CDMA performance optimization principal and tool
- RF engineering fundamentals
- Base Station manager Navigation
- Metro cell maintenance and operation
- CDMA traffic and capacity planning
- Into to RF engineering
- CDMA technology and Nortel product
- Rsat with CDMA
- Tektronix test equipment
- Cell wave antenna training
- CDMA IS-95A Technology Training by Nortel Technologies
- Enhanced BSC Training Nortel Platform

Qualifications:

- Conducted CW Drive Test
- Hummingbird
- Grayson Invex3G & Interpreter
- Agilent, Wiper for Scanning, Nitro E6474A Drive Test Tool
- MapInfo 8.0 (GIS Tool)
- Exceed Wind Catcher
- Actix
- CACP
- BSC UNIX Base Commands
- BSM Navigator
- Programming Andrew and EMS repeaters
- Complete understanding of Smart antennas KMW, EMS, Andrew and RFS programming software
- Install GPS/CDMA antenna. Make and route RF and cables.
- Test T1circuit with T-BYRD,
- Sweep lines Anritsu Site master.

HOBBIES

Tennis, racquetball, reading, swimming, fishing

Summary of some of the activities during RF Engineering position

I have demonstrated leadership through various projects concurring simultaneously such Complete PN Retune from Inc 4 to 3 for 590 sites within Miami market, Optimization package for various counties to improve EVDO data throughput, designing and implementing 92 sites in 2007 for Miami market, Implemented a 45 nodes outdoor Fiber DAS system project within City of palm Beach, Investigated and eliminated interference issues throughout our market regularly. as well implementation And maintained integrity of indoor and outdoor repeaters system within Miami and Ft Myers market, MTX11, MTX 12 and NBSS13 FIT, MTX 13 feature testing, I Care Project, Translation Parameter compliance accuracy project and American Airline Contract project for Miami Airport. Special Event activities within Miami Market (NASCAR championship series in homestead FL, DAS system implementation for Westin hotel) Training new Engineer and contactors entering our market.

Restoration effort for various hurricanes impacted our network

I have been the POC for the I CARE project in Miami market. This highly visible project initiated by RF engineering group and field operation partnership to improve the performance. I have created 20 clusters per geographical area per filed techs according to the criteria needs most attention within our market I have initiated regular conference call with Field Operation and educated the field techs with processes and procedures in order to reach our goals and to track the progress and answer any question it may arise.

I was responsible for troubleshooting any RF issues across 3 switches within Miami market and delivered recommendations to improve performance statistics across degraded cells. I have carried out daily performance monitoring and troubleshooting using System Performance Analysis Tool. Deployment of optional features such as Dynamic RC3-RC4 configuration, Multiple Access/Paging Channel, ISSHO and hand hand off with Orlando and Tampa borders, participate the ATM back bone set up between FT Meyers and Deerfield switch.

I was Responsible for Network Optimization, Performance Analysis. Possess complete understanding of CDMA 1XRTT architecture, database parameters and Radio network performance. Possess in-depth understanding of Nortel algorithms pertaining to Power Control, Handoff, Load Management, Access and Paging channel handoffs, Rate overload and Capacity overload algorithms. Good understanding of Voice as well as Data Call Processing. I was the POC and have been working closely with Nortel Core Engineering team in analyzing the impact of various NBSS load from NBSS11 till NBSS14. Miami Market has been the test bed for last 4 NBSS load test.

Delivered network optimization recommendations based on drive test analysis using Actix analyzer, Grayson, interpreter, Agilent. Exceed Wind catcher, deliver recommendations on sensitivity analysis such as FER, power control, mobile transmit power, PN planning issues (delay spread and multi-path environment, rake search window, PN offset interference and design criteria). Working in tandem with the circles to monitor daily performance statistics in terms of access failure rate, drop call rate, traffic load per sector/carrier, soft handoff percentage and deliver recommendations for cells with degraded performance.

I was responsible for network optimization which included scanner drive, unloaded drive and OCNS loaded drive test. Optimization tasks involved drive test analysis to mitigate pilot pollution and delivering recommendations for parameter tuning, neighbor configuration and antenna azimuths/down tilts. Responsible for Baselineing of network after Optimization stage through cluster drives and prepare all the exit criteria parameters.

Post optimization, responsible for in-service optimization (comprising of Cluster drive test analysis, neighbor list tuning and periodic RF database audit), daily performance monitoring which mainly included monitoring and troubleshooting high Drop Call Rate, Established Call Failure Rate for Origination and Termination, RF Failure Rate for Origination and Termination, Origination/Termination Blocking Rates, high SHO Percentage per sector carrier and Semi SHO failure rate. Was instrumental in bringing about the network growth planning in Miami Market, based on Quarterly reports, which included traffic growth forecasting trend and RF dive test-based coverage holes as major inputs.

I was the POC for special events in Miami market, such as Calle OCHO, Indy Race Car in Homestead

Florida, Air and sea show in ft Lauderdale and various other events such as presidential debate in University of Miami to fantasy fest in Key West. Through the past 4 years I had added 7COWS and numerous amounts of carriers to compensate for additional traffic load

Miami market was the first market implements RC4 radio technology in Nortel markets nationwide, with phenomenal result since then we have implemented RC 4 on Dolphin stadium, orange bowl and various Festival and sporting events, the procedures have been forwarded to various market to follow the same set of power managements.

I have been the POC for the (I CARE) project in Miami market. This highly visible project initiated by RF engineering group and field operation partnership to improve the performance of the overall network. I have created 20 clusters per geographical area per field techs according to the criteria needs most attention within our market I have initiated regular conference call with Field Operation and educated the field techs with processes and procedures in order to reach our goals and to track the progress and answer any question it may arises.

George Brosseau

Principal RF Design Engineer

AT&T Mobility – Florida

2000-Current

Bell South Mobility Lead RF Design Engineer and RF Design Manager for the South Florida Cellular Networks, later Cingular Wireless and now AT&T Mobility. Lead design changes from TDMA to GSM to UMTS to LTE and now focusing on 5G deployments for both general public and FirstNet customers. Originally responsible for overseeing 7 counties on Florida's lower SE coastline to now having responsibility for all Mobility outdoor build activities in 10 counties of lower Florida. Responsible for planning network expansions, technology overlays, capacity augmentations, new site macro builds, small cell builds, temp site deployments, and some special projects – including first large scale DAS deployment in Joe Robbie Stadium that was bought as a turn-key project from the largest DAS provider at the time but had to be redesigned when vendor failed to meet contract obligations for coverage/performance and requested assistance. Frequency bands include licensed 700MHz, 800MHz, 1900MHz, 2100MHz, 2300MHz, 39GHz and unlicensed WiFi 3GHz.

1991-2000

Ericsson Principal Systems Engineer. Produced wide area radio dispatch system designs for turnkey 911 and Utility networks. Projects as large as Southern Company that spanned 4 states and as small as a single county. Responsible for all phases of contract delivery, from component procurement that was part of turn-key design, i.e. microwave transport networks, towers, equipment shelters, earth grounding and power systems, and even dispatch center monitors and furniture not manufactured by Ericsson. Developed installation drawings, supervised installation activities, troubleshooting and performed final acceptance testing. Projects completed and still in service today include Florida Power & Light, Orlando Utilities, Volusia County FL., Hillsborough County FL., and Indian River County FL. Also assisted other Ericsson Principal System Engineers troubleshoot other large and small projects, primarily coverage and interference issues. From a full-ship radio system within a US aircraft carrier to one of the first fiber fed DAS systems inside a nuclear power plant.

1988-1991

Omnicom Systems Engineer. Produced Public Safety radio system assessment reports, radio system design alternative reports, turnkey radio system bid specifications, and acceptance testing reports. Bidders were GE Mobile Communications, Motorola, Harris Farinon, Andrew and Rohn, with other smaller companies as sub contracted equipment providers. Projects completed to full acceptance and deployment include; City of San Bernardino CA, City of Garland TX, Peachtree City GA, FDOT, Motorist Aid on Interstates I-10, I-75, and I-95.

1987-1988

Omnicom Intern. Omnicom was a very small but prolific Public Safety focused radio system consulting company. Mentors and principals of company were Phillip Byrd (Nasa/Apollo Communications Eng.) and Eugene Buzzy (Florida Division of Communications) who participated in FCC development of 800MHz spectrum for wide-area Public Safety radio networks. Tasks included site visits, data collection of existing radios systems; manual propagation studies, intermodulation studies, report generation, and proprietary coding for one of the first PC based propagation engineering software programs for 800MHz radio propagation prediction. Worked with both fixed microwave and mobile radio in 800MHz, 900MHz, and 2GHz bands.

In the commercial wireless industry, we use common propagation prediction models to generate coverage maps. Those models are based on vehicles driving on the open roadways collecting massive amounts of data for model tuning. When a new site is deployed some within the predicted coverage footprint do not see the level of coverage/performance expected where they try to use their phones and there is no immediate consequence to the service provider since we can show coverage on the open roadways where data is collected. We log customer complaints and try to improve it with some parameter adjustments as best we can and note where it cannot be improved for future build planning. In the private Public Safety turn-key industry, companies also use a common prediction model to generate a coverage picture and perform acceptance testing after network construction by collecting data in a vehicle driven throughout the coverage area. The difference is final payment is withheld until acceptance testing is complete and by then users have had a chance to experience the coverage/performance where they need to operate in many places off the open roadways, and report areas/locations where it does not cover at all or with very little reliably. For those police officers, deputies, hot-wire utility workers, and others who rely on the dispatch radio system it is something that is not acceptable, results in negotiated settlement, and it forces the system design engineer who designed the system using the prediction model to learn why it does not work there ...it is because clutter (trees and buildings) regulates the radio path more so than any model accurate accounts for on a localized level and it's something that few radio system engineers really get the "opportunity" to learn in great depth. I had the good fortune and very difficult experiences gained in those Public Safety turn-key years and very few others have had that "opportunity". There have been many advancements in the propagation modeling industry over the past 30+ years, but the basis and focus remains tied to open roadways (collected by vehicles) and only recently have we been able to start seeing it off road in high resolution as we collect "big data" with GPS stamping from smart phones at all places they are used.