

Mark J. McNeely, P.E., CFEI
Managing Engineer

Professional Profile

Mr. Mark McNeely is a Managing Engineer in Exponent's Electrical Engineering and Computer Science practice. His areas of expertise include cellular phone communications, telecommunications products and infrastructure, Smartmeters, acoustics and acoustic product standards, wireless networks, broadband technology, cable television systems, fiber optic communication systems, biometric systems, RFID, communication protocols, and solar power infrastructure.

Mr. McNeely provides consulting services related to a variety of products including mobile handsets, biomedical devices, RF products, portable audio devices and headsets, magnetic components, building automation and safety systems, automotive electronics, and solar panels. These investigations involve root cause failure analyses, electrical modeling, acoustic measurements, EMF surveys (using Narda survey equipment), standards compliance, risk assessments, and potential product recalls.

Mr. McNeely also examines and characterizes electrical and electronic devices that are implicated during fire, origin, and case investigations. He has been involved in intellectual property and trade secret matters and has performed infringement assessment, examination and testing, claim interpretation, and prior art research.

He also has experience reviewing the design and installation of building systems including electrical distribution systems, solar arrays, fire alarm, security, CCTV, audio-visual, telecommunications, and card access, to assist clients with construction quality control and dispute resolution.

Together with Exponent's Technology Development practice, Mr. McNeely has developed prototype electronic systems including wireless PDA-based battlefield remote sensing and biometric systems. Mr. McNeely has also assisted the U.S. Army and Navy with the development and testing of radio frequency subsystems related to battlefield robots and networked sonobuoys.

Mr. McNeely's prior experience includes working as a Vice President of Electrical Engineering Department of Salas O'Brien Engineers, Inc., in San Jose, CA, and work as an independent consultant with Northrop-Grumman Corporation, Naval Research Laboratory, and the Los Alamos National Laboratory on projects related to the development of improved wideband microwave amplifiers for communication systems. He also has experience in performing radio frequency measurements on a variety of components, ranging from 1 MHz to 50 GHz, encompassing microwave sources, both amplifiers and oscillators, to transmission lines, antennas, and receiver systems.

Academic Credentials and Professional Honors

M.S., Electrical and Computer Engineering, University of Wisconsin at Madison, 2001
Instituto Tecnológico y de Estudios Superiores de Monterrey, August 2000 – May 2001
B.S., Electrical and Computer Engineering, University of Wisconsin at Madison, 1998

Licenses and Certifications

Registered Professional Electrical Engineer, California, #E18398

Certified Fire and Explosion Investigator (CFEI) in accordance with the National Association of Fire Investigators

Technician Class Radio License "KJ6KOV"

Publications

Kelsh MA, Shum MS, Sheppard AR, McNeely M, Kuster N, Lau E, Wielding R, Fordyce T, Sulser C. Measured radiofrequency exposure in various mobile phone-use scenarios. *Journal of Exposure Science and Environmental Epidemiology* 2010; doi: 10.1038/jes.2010.12.

Erdreich LS, Van Kerkhove MD, Scrafford CG, Barraj L, McNeely M, Shum M, Sheppard AR, Kelsh M. Factors that influence the radiofrequency power output of GSM mobile phones. *Radiation Research* 2007; 168(2):253–261.

Van Kerkhove MD, Erdreich LS, Shum M, McNeely M, Chan N, Barraj L, Kelsh M. Variability of radiofrequency power output of GSM mobile phones. *Epidemiology* 2004; 15(4):S115.

Kelsh M, Erdreich LS, Sheppard AR, Kuster N, Van Kerkhove MD, Shum M, Fröhlich J, McNeely M. Improving radiofrequency exposure assessment in studies of mobile phone users: An overview of research design and preliminary data. *Epidemiology* 2004; 15(4):S115–S116.

Presentations

McNeely M. Where's my Humvee? Cell phone call detail records and cell tower analysis course. Modesto Police Department, Modesto, CA, April, 2011.

McNeely M, Curran B. Foothill Utilities master plan. Foothill DeAnza Community College District, Los Altos, CA, March 2009.

Shum M, Kelsh M, Lau E, Sheppard AR, McNeely M, Kuster N. Correlation of power control setting to RF power levels from software modified phones. Bioelectromagnetics 28th Annual Meeting in Cancun, Mexico, June 11–15, 2006.

Shum M, Kelsh M, McNeely M, Sheppard AR, Kuster N, Lau E. Evaluation of mobile phone handset exposures using a portable phantom system. Bioelectromagnetics 28th Annual Meeting, Cancun, Mexico, June 11–15, 2006.

Shum, M, Kelsh M, Sulser C, McNeely M, Kuster N, Fröhlich J, Sheppard AR. Evaluation of mobile phone exposure variation. American Industrial Hygiene Conference and Exposition (AIHce) Chicago, IL, May 13–19, 2006.

Kelsh MA, Sulser C, Shum M, McNeely M, Kuster N, Froehlich J, Sheppard A. Evaluation of mobile phone handset exposures using software modified phones and field phantom systems. BioEM, University College, Dublin, Ireland, June 19–24, 2005.

Shum M, Kelsh M, Sheppard A, Chan N, Kuster N, Fröhlich J, Erdreich L, Van Kerkhove McNeely M. Podium PO128 physical agents: Ionizing/nonionizing radiation/heat stress. Improved assessment of cell phone exposure for epidemiologic studies. American Industrial Hygiene Conference and Exposition (AIHce), Atlanta, GA, May 12, 2004.

Shum, M, Sheppard A, Kelsh M, Kuster N, Fröhlich J, McNeely M, Chan N. Pilot study to determine environmental factors that influence RF Exposure from mobile phones. Bioelectromagnetics Society 26th Annual Meeting, Washington, DC, June 23, 2004.

Wirth MA, Scharer JE, Booske JH, Converse MC, McNeely MJ, Groshart G, Gannon B, Armstrong C. Investigations of non-linear spectral behavior in multi-toned helix traveling wave tubes. 28th IEEE International Conference on Plasma Science (ICOPS), Las Vegas, NV, June 2001.

Wirth MA, Scharer JE, Booske JH, Converse MC, McNeely MJ, Wohlbier JG, Groshart G, Ganon B, Armstrong C. Investigations of non-linear spectral behavior in multi-toned helix traveling wave tubes. 27th IEEE International Conference on Plasma Science (ICOPS), New Orleans, LA, June 2000.

McNeely MJ, Converse MC, Booske JH, Scharer JE, Kory CL, Zavadil D. Nonlinear characterization and comparison with simulation of a highgain, broad band helix traveling wave tube. 27th IEEE International Conference on Plasma Science (ICOPS), New Orleans, LA, June 2000.

Lopez MR, Gilgenbach RM, Anderson SA, Lau YY, Brake ML, Peters CW, Cohen WE, Jaynes RL, Luginsland JW, Spencer TA, Lemke RW, Price D, Booske JH, McNeely MJ, Ludeking L.

Magnetron simulations and experiments. 27th IEEE International Conference on Plasma Science (ICOPS), New Orleans, LA, June 2000.

McNeely MJ, Booske JH, Scharer JE, Basten MA. Analysis of 3-D phase space dynamics of pencil-to-sheet-electron-beam transformation in highly-non-paraxial quadrupole lens system. 26th IEEE International Conference on Plasma Science (ICOPS), Monterey, CA, June 1999.

McNeely MJ, Booske JH, Scharer JE, Basten MA. Formation of pencil-to-sheet-electron beam using a quadrupole lens system. MAGIC Users' Group at 26th IEEE International Conference on Plasma Science (ICOPS), Monterey, CA, June 1999.

Louis LJ, Scharer JE, Booske JH, McNeely MJ. Experimental and theoretical investigations of a rectangular grating structure for low-voltage traveling wave tube amplifiers. 24th IEEE International Conference on Plasma Science (ICOPS), San Diego, CA, May 1997.

Selected Construction Project Experience

Historic Renovations

Ukiah Historic Railway Station MEP Renovation, Ukiah, CA

Niles Town Plaza Passenger & Freight Buildings MEP Renovation, Niles, CA

Carnegie Library MEP Restoration, Alameda, CA

Academic Facilities

Foothill Community College 12 kV Electrical & Telecom Master Plan, Los Altos, CA

De Anza Community College Autotech Building MEP Renovation, Cupertino, CA

Contra Costa Community College 12 kV Electrical System Master Plan, San Pablo, CA

Silver Creek High School Switchgear Arc-Flash Study, San Jose, CA

Ohlone College Telecommunications & Networking QA Review, Newark, CA

Office and Commercial Facilities

Security and Fire Alarm QA Review at City of Fremont Maintenance Facility, Fremont, CA

Hydraulic Lift Demolition and Installation at AT&T Facility, Santa Rosa, CA

Field Operation Center MEP Renovation at AT&T Facility, Martinez, CA

Telecommunications and Electrical Renovation at AT&T Headquarters, San Ramon, CA

Server Room Electrical & Telecom Upgrade at AT&T Facility, Dublin, CA

Smith Plaza Phase IV MEP Renovation at AT&T Headquarters, San Ramon, CA

Solar Array Installation at AT&T Headquarters, San Ramon, CA

Government Facilities

Fire Department of New York Operation Center MEP Quality Assurance, New York, NY

Metropolitan Transit Authority Subway Repeater System QoS Validation, New York, NY

Peer Reviewer

- *Health Physics Journal*
- *Radiation Research Journal*

Professional Affiliations

- Institute of Electrical and Electronic Engineers Product Safety Engineering Society
- Bioelectromagnetics Society—BEMS
- National Association of Fire Investigators—NAFI