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 AI-DAIWA, LTD.

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12 Attorneys for Defendants
 APPARENT INC, APPARENT ENERGY INC.,
 13 APPARENT SOLAR INC., AND XSLENT
 ENERGY TECHNOLOGIES, LLC; APPARENT
 14 SOLAR INVESTMENTS (II), LLC
 ERRONEOUSLY SUED HEREIN AS APPARENT
 15 SOLAR INVESTMENTS, LLC and Counter
 claimants APPARENT INC and APPARENT
 16 ENERGY INC

17 UNITED STATES DISTRICT COURT
 18 NORTHERN DISTRICT OF CALIFORNIA

19
 20 AI-DAIWA, LTD.,

21 Plaintiff,

22 v.

23 APPARENT, INC., a Delaware Corporation;
 APPARENT ENERGY, INC., a Delaware
 24 Corporation; APPARENT SOLAR, INC., a
 Delaware Corporation; APPARENT SOLAR
 25 INVESTMENTS, LLC, a Hawaii limited
 liability company; XSLENT, LLC, a Delaware
 26 limited liability company; XSLENT ENERGY
 TECHNOLOGIES, LLC, a Delaware limited
 27 liability company; and DOES 1-10 inclusive,

28 Defendants.

CASE NO. CV13-4156 VC

**JOINT STATEMENT: RE FAILURE TO
 AGREE ON COURT-APPOINTED EXPERT**

AND ORDER

2
3 **I.**

4 **INTRODUCTION**

5 At a Case Management Conference, held on April 7, 2014, the Honorable Yvonne
6 Gonzalez Rogers ordered the parties to meet and confer to provide recommendations for (1) an
7 expert to serve as a Joint Court Appointed Expert related to the solar power microgrid inverters or
8 “MGi devices” (the “Products-at-Issue”), and (2) protocols and procedures for the expert’s
9 opinion related to the Products-at-Issue, including their design, manufacturing, and testing. The
10 Parties filed a Stipulation on April 9, 2014, and requested more time to select an expert. (Docket
11 No. 43.) On April 30, 2014, the Honorable Vince Chhabria denied the Stipulation and ordered
12 the Parties to file a Stipulation for Court-Appointed Expert by May 14, 2014, which included the
13 name of a particular person the parties agree should be appointed to serve as a technical expert or
14 two names if the parties cannot agree. (Docket No. 47.) The Parties are unable to agree to the
15 proposed experts, each of whom is an engineer at Exponent.

16 **II.**

17 **PROPOSED COURT EXPERT**

18 **Plaintiff’s Section:**

19 On April 9, 2014, Plaintiff proposed two experts from Exponent, John Loud, P.E., CFEI,
20 and Mark McNeely, P.E., CFEI. Defendants proposed one expert, also from Exponent, Ray
21 Huang, Ph.D., P.E., CFEI. Attached hereto as Exhibit A, B, and C are the professional profiles
22 from the Exponent website for Loud, McNeely, and Huang, respectively. Their proposed rates
23 for this matter are as follows: Loud (\$495), McNeely (\$310), and Huang (\$295).

24 All three are experts at Exponent in Electrical Engineering & Computer Science and have
25 experience in this field of technology, however, only the experts Plaintiff proposed have
26 experience providing expert reports in Federal Court.

27 Loud, a Principal Engineer is the most experienced of the three. Loud has been deposed
28 numerous times. McNeely and Huang are Managing Engineers. McNeely has been at Exponent

1 since 2002, and has experience testifying and has written numerous expert reports, pursuant to
2 Federal Rules, as has Loud. McNeely has relevant experience regarding solar power
3 infrastructure, solar panels, and solar arrays, as stated on his profile, and has performed analysis
4 of microinverters and related software. McNeely has slightly more experience relevant to the
5 subject matter of this case, but, more importantly, Plaintiff anticipates that this expert's analysis
6 and report could be dispositive of key issues in this case and a lack of experience will be of
7 utmost concern, considering any expert will likely be deposed.

8 Huang has been at Exponent since approximately 2010. Huang informed Plaintiff's
9 counsel that he has little to no experience drafting reports or testifying in court. Plaintiff objects
10 to Huang being the lead Court-Appointed Expert based on the fact that he is the least experienced
11 and most junior of the three proposed experts. Plaintiff finds it incumbent to have an expert
12 familiar with communicating these complex technical issues and concepts consistent with the
13 Federal Rules. Both McNeely and Loud have more experience than Huang with respect to
14 reports and testifying. Defendants have failed to articulate why McNeely or Loud would not be
15 appropriate experts for this case and have only provided Huang's name.

16 Based on the foregoing, Plaintiff proposes McNeely as the lead Court-Appointed Expert.
17 Plaintiff has confirmed that McNeely is amenable to discussing his qualifications with the Court.
18 He can be contacted at (650) 688-7224.

19 Ironically, despite Defendant's contention that Loud is the least qualified of these experts,
20 both McNeely and Huang would concede that Loud is the most experienced and they both often
21 report to him associated with work in this field. Rather than dispute this fact, Plaintiff has offered
22 McNeely as Plaintiff's proposed expert, and have articulated to Defendants several times why
23 Plaintiff would object to Huang serving in this lead role. Although Plaintiff does not object to
24 Huang working with McNeely or Loud, Plaintiff objects to Huang being the lead and testifying
25 expert on this matter.

26 **Defendants' Section:**

27 At the initial case management conference on April 7th, both parties' stipulated to a Court-
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1 appointed expert to resolve discovery issues by conducting joint testing. The Court asked the
2 parties to agree on an expert or each submit a name for the Court to select. (See, Docket No. 41
3 minute order confirming action taken at CMC.) Pursuant to the Court’s order, the parties agreed
4 to the scope of joint testing but could not agree to an expert. Defendants proposed Ray Huang,
5 Ph.D., P.E., CFEI as the Court-appointed expert. The Plaintiff proposed Mark McNeely, P.E.,
6 CFEI or John Loud, P.E., CFEI, although the Court asked for one expert to be submitted by each
7 party. All experts work at Exponent. When neither party accepted the other’s proposed expert,
8 Defendants proposed listing Dr. Huang and Mr. McNeely (whom the plaintiff’s counsel
9 identified as their proposed choice) as two experts for the Court’s choice and offering to provide
10 additional information to support their choices. Plaintiff’s counsel refused stating that he could
11 not accept Dr. Huang as the Court-appointed expert regardless of the stipulation Plaintiff’s
12 counsel entered into. Instead, Plaintiff’s counsel elects to submit both Mr. McNeely and Mr.
13 Loud as well as argument against Dr. Huang. With regret, Defendants are forced to respond.

14 The Defendants propose Dr. Huang based on his higher education and on his specialty
15 which is described as “specializing in supplier and manufacturer quality, reliability as well as
16 product failure and compliance analysis in the area of analog/digital consumer electronics both at
17 component and system level.” (See, Exhibit C, Dr. Huang’s professional profile.) Dr. Huang’s
18 specialty focuses on root cause of failures of power supply electronics. A solar microinverter is a
19 power supply used in a solar energy system. Dr. Huang’s specialty encompasses the claims made
20 in this litigation, to wit., whether defects in the microinverter were due to Apparent’s poor design,
21 either by configuration or selection of components, or AI-Daiwa’s poor workmanship. These are
22 questions that Dr. Huang addresses in his area of work.

23 Mr. McNeely has described experience with power supplies, design, and component
24 failure analysis, but his stated area of specialty is in radio frequency analysis (See, Exhibit B.),
25 indicating less direct focus to the issues in this case than Dr. Huang. Mr. Loud’s specialty is with
26 large power components and devices (such as transformers) and electrocutions caused by such
27 devices. (See, Exhibit A.) This case presents no issue relating to electrocutions or large power
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1 components. Contrary to statements made in the Plaintiff's section above, Defendants' counsel
2 has explained on more than one occasion that a comparison of each person's specialties and
3 experience indicates Dr. Huang is better suited for this assignment.

4 The Plaintiff's counsel also states that Dr. Huang has 'little to no experience' with regard
5 to drafting expert reports and testifying regarding matters of specialized knowledge, as with
6 regard to expert opinion. Dr. Huang has not provided trial testimony but he has been identified as
7 an expert on several occasions, provided deposition testimony, and written several expert reports
8 individually as well as part of a team with regard to state and federal litigation. Dr. Huang may be
9 contacted by the Court at (650) 688-6908.

10 III.

11 **STIPULATION OF THE PARTIES RELATING TO THE SCOPE OF JOINT TESTING**

12 The Parties by and through their counsel of record stipulated at the Initial Case
13 Management Conference to joint testing by a Court-appointed expert. While the Parties are
14 unable to stipulate to the specific expert, they submit the following stipulation as to the standards
15 and scope of joint testing.

16 **A. STANDARDS**

17 The Federal Rules of Evidence allow a court to appoint an expert either "on its own
18 motion or on the motion of any party." Fed. R. Evid. 706(a). Rule 706(a) provides:

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20 The court may appoint any expert witnesses agreed upon by the parties, and
21 may appoint expert witnesses of its own selection ... A witness so appointed
22 shall be informed of the witness' duties by the court in writing, a copy of
23 which shall be filed with the clerk, or at a conference in which the parties shall
24 have opportunity to participate. A witness so appointed shall advise the
25 parties of the witness' findings, if any; the witness' deposition may be taken
26 by any party; and the witness may be called to testify by the court or any
27 party. The witness shall be subject to cross-examination by each party,
28 including a party calling the witness.. . .The Court may authorize the
disclosure to the jury that the court appointed the expert and this rule does not
limit a party in calling its own experts.

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B. PROPOSED ORDER OF APPOINTMENT

Based on the Parties consent at the April 7th Case Management Conference, the Court appoints an expert as a “Court Expert” under the following terms:

1. The Court Expert shall serve as a neutral, independent expert regarding the following: (a) whether the MG_i delivered by AI-Daiwa to Apparent met the specifications and testing the Parties agreed to under the Agreement at issue, the November 15, 2011 “Test Plan for Apparent System REV D,” or any subsequently agreed-upon quality and testing standards; and, (b) Identify the extent and basis of the MG_i failures that Defendants have attributed to manufacturing defects and AI-Daiwa has attributed to improper design, including selection of component(s).

2. The Court Expert’s duties shall include the following: (a) to develop, with input from both parties, a process to complete the steps identified in paragraph 1; (b) conduct testing to complete the steps identified in paragraph 1; (c) to prepare a report to document the testing procedure, the tests performed, and the results of the tests; (d) submit to deposition and provide testimony at court; (e) provide a basic tutorial to the Court and the jury on the underlying technology at issue in the case related to the Products-at-Issue; (f) to provide a tutorial, expert analysis and opinions as to the operation of the Products-at-Issue; and (g) to provide expert analysis and opinions as to the technical issues in this case regarding the operability of the Products-at-Issue.

3. The Parties will provide the Court Expert with Materials as described in paragraph 4 as the Court Expert may require for the use in forming his/her opinions. The materials will be provided to the Court Expert within thirty (30) days of the entry of an order appointing him/her. Other materials will be provided on a rolling basis as they are required by the expert and/or become available during the course of the litigation. The Court Expert is not limited to these materials, and may request additional information that he/she believes is necessary.

4. Materials

a. The following Materials shall be provided to the Court Expert within thirty days of

1 entry of an order appointing him/her:

2 (i) Apparent shall provide 10 samples of delivered MG*i* devices that do not operate
3 and that were not previously used or sold by Apparent, or otherwise modified by Apparent; and
4 10 samples of MG*i* devices that failed in the field;

5 (ii) AI and AI-Daiwa shall provide 10 samples of MG*i* devices produced in the period
6 2011-2012 and have completed the required testing but have not been delivered to Apparent;

7 (ii) A Bill of Materials use for the manufacture of the MG*i* devices;

8 (iii) Specification sheets for manufacture of the MG*i* devices;

9 (iv) The Supply Chain Agreement, Addendum, and Quality and Testing Standards
10 provided to AI and AI-Daiwa for the manufacture of the MG*i* devices;

11 5. The Parties shall meet and confer to determine what additional information to
12 provide the Court Expert. If the Parties disagree about the propriety of providing a certain
13 document or thing to the Court Expert, and the Parties cannot resolve the dispute through a meet
14 and confer, the Parties will seek the Court's assistance, and neither party shall provide that
15 document or thing to the Court Expert until and unless the Court has resolved the issue.

16 6. The Court Expert may look to the expert reports and the deposition transcripts of
17 the Parties' experts for guidance as to what the experts and the Parties believe are the key issues
18 to be address in this case. His/her conclusions are to be his/her own independent opinions.

19 7. The Court reserves the right to have informal verbal communications with the
20 Technical Expert which are not included in any formal written report.

21 8. In determining the testing procedures, the Court Expert shall engage both Parties
22 but shall retain his/her sole discretion as to how to proceed. All testing shall be videotaped and,
23 subject to the Court Expert's consent, each Party shall be entitled to observe testing but not
24 participate in any step, discussion, or procedure related to testing.

25 9. After concluding all testing and reviewing material submitted to him/her, the Court
26 Expert will provide a written report describing the testing procedures, the results of the tests, and
27 the expert's conclusions, a copy of which shall be provided to the Court and the Parties. The
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1 Court Expert's report should be sent to the Parties by express mail within 30 days of completing
2 testing and reviewing all submitted material. Within twenty-one (21) days of the submission of
3 the expert report, the Parties may ask the Court Expert to appear for a deposition at a time and
4 location that is convenient. At the deposition, the Parties can ask the Court Expert questions, and
5 he/she will be given the opportunity to explain his/her opinions in greater detail prior to his/her
6 testimony at trial. Each Party may depose the Court Expert for up to seven (7) hours.

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8 10. **In the Court Expert's Report:**

- 9 • The Court Expert Report shall describe the test procedures, materials reviewed and
10 relied upon, testing and test results, and identify and explain any conclusions
11 reached by the Court Expert regarding
- 12 ○ The existence of any defect in the manufactured MGi
 - 13 ○ The cause of any defect identified in the MGi
 - 14 ○ Whether the MGi was manufactured to Apparent's specifications
 - 15 ○ Whether the operability of any component on Apparent's Bill of Materials
16 contributed to the defect or defects

17 11. The Court Expert will testify at trial on his/her opinions.

18 12. In order to accept this appointment, the Court Expert must give his/her consent to
19 serve as the Court-appointed expert in this case and declare that he/she will adhere to the terms of
20 his appointment, by signing below and returning the signed original to the Court in the enclosed
21 envelope.

22 13. The Court Expert must also confirm that he/she has no conflicts of interest.

23 14. Upon the Court Expert's consent and the Court's appointment, the Parties will
24 retain the Court Expert. The costs of the Court Expert shall be borne equally by AI-Daiwa,
25 Apparent Inc, and Advanced Innovations. Within ten (10) days of the appointment, the Court
26 Expert shall provide an estimate of the cost of this assignment and shall specify a retainer against
27 which fees and costs shall be billed. The parties shall deposit their share of the costs of the Court
28 Expert within 10 days of receipt of the retainer. The retainer shall be supplemented as designated

1 by the Court Expert, subject to a Party's right to request that the Court review and adjust any fees
2 and costs.

3 15. The Technical Expert shall report to the Court on a periodic basis, every sixty (60)
4 days, regarding the state of his fees and expenses and make a recommendation to the Court as to
5 whether the trust account needs additional deposits from the parties as the case progresses. All
6 matters pertaining to the fees of the Technical Expert are referred to the assigned Judge.
7

8 IT IS SO STIPULATED, THROUGH COUNSEL OF RECORD, AS TO SECTION III.

9 DATED: 5/14/2014 /Lael D. Andara/
10 Attorneys for Plaintiff

11 DATED: 5/14/2014 /Jacqueline deSouza
12 Attorneys for Defendants

13
14 PURSUANT TO STIPULATION AS SET FORTH IN SECTION III, AND COURT ORDER
15 UPON GOOD CAUSE, IT IS SO ORDERED AS FOLLOWS:

16 The Court appoints Mark McNeely of Exponent as the Court appointed expert to
17 perform the scope of joint testing stipulated to by the Parties.

18 Dated: May 15, 2014

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21 _____
22 Honorable Vince Chhabria
23 United States District Court Judge
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Exhibit A

John D. Loud, P.E., CFEI

Principal Engineer

Electrical Engineering & Computer Science



Contact Information

(650) 688-7216 tel
(650) 321-0665 fax
jloud@exponent.com
Menlo Park

Related Capabilities

- » Batteries & Energy Storage Technology
- » Battery Failure Investigation
- » Battery Pack Evaluation & Testing
- » Battery System Design Review & Testing
- » Consumer Product Safety Improvement Act (CPSIA)
- » Cranes
- » Electric & Electronic Materials & Packaging
- » Electric Power Failure Analysis & Prevention
- » Electrical Injuries
- » Electronics Component Reliability Consulting
- » Instrumentation & Control Systems
- » Intellectual Property
- » Power Systems Engineering / Power Management
- » Product Qualification & Recall Consulting
- » Reliability Engineering
- » Vehicle Electrical & Electronic Systems
- » Wind Energy Services

Professional Profile

Mr. Loud specializes in electrical engineering issues. He addresses issues related to electronic systems including printed circuit board problems, electronic component failures, circuit analysis, and propagating failures. He has investigated numerous incidences involving electrocutions and electric shocks and has also conducted many investigations involving electrical/electronic products that are alleged to have caused fires. His expertise further includes work with lighting products, rotating electric machines, as well as secondary battery systems in the area of lithium ion cell testing and protection systems, NiMH, NiCad, and lead acid charging systems. His test results and recommendations for products using lithium ion cells have been used by many in the portable electronics industry. He has performed fault analysis on electrical distribution equipment, breakers and switchgear. Mr. Loud also has experience with industrial electronic equipment including automated metering equipment, locomotive black-box event recorders, and locomotive control equipment. He is experienced in addressing issues related to electronic manufacturing and service, equipment production, test and circuit board rework and repair. He is also experienced in applying relevant electrical codes and standards including the NEC, NESC, General Orders 95, 128, 165, OSHA, UL, ANSI, etc.

Prior to joining Exponent, Mr. Loud worked for Neta Corporation and Q-Tron Industrial Electronics and worked as a consultant for companies such as General Motors EMD Division, Burlington Northern Railroad, CSX Railroad, and the Atchison Topeka & Santa Fe Railroad.

Publications

Loud JD, Hu X. Failure analysis methodology for Li-ion incidents. Proceedings, 33rd International Symposium for Testing and Failure Analysis, pp. 242–251, San Jose, CA, November 6–7, 2007.

Loud JD, Murray SJ, Ray RM, Iyer M, Jackson O. Shock injury risk assessment of portable and handheld appliances and use environments. Proceedings, 57th Annual International Appliance Technical Conference, Rosemont, IL, March 27–29, 2006.

Loud JD, Murray SJ, Caligiuri RD. Failure modes in Calrod-type heaters used in home appliances. Proceedings, 57th Annual International Appliance Technical Conference, Rosemont, IL, March 27–29, 2006.

Credentials & Professional Honors

M.S., Electrical Engineering, San Jose State University, 1995

B.S., Electronics Engineering Technology, DeVry Institute of Technology, 1992

Tau Beta Pi

Eta Kappa Nu

Licenses & Certifications

Registered Professional Electrical Engineer, California, # 17564

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

4-Year Apprenticed Electrician, Canadian Pacific Railway

Protective Relays and Trip Devices in Electrical Power Systems Course, 1998

Loud JD. Vector control of an induction machine. Master's Thesis, San Jose State University, 1995.

Presentations and Published Abstracts

Loud JD. The science of electric shocks. Guest lecture at Stanford University, 2007, 2008, 2009.

Loud JD. Accelerated stress testing for home appliances. IEEE ASTR Conference, San Francisco, CA, October 2006.

Loud JD. Top ten failures in electronic circuits. Presented to Engineers at Apple Corporation, April 1997 and at Dell Computer Corporation, February 1998.

Loud JD. Electronic case history review—Learn from someone else's design mistakes. Presented to 300 Engineers at Hewlett Packard Corporation, November 1997.

Loud JD. Safety design of electronic circuits. Presented to IEEE in Austin, TX, February 1998.

Loud JD, Hsu P. Evaluation of vector controlled induction motors as joint actuators for industrial robots. Proceedings, IASTED International Conference Robotics and Manufacturing, Honolulu, HI, August 19–22, 199.

Reports

Loud JD. Compact driver and controller Part II—Vector control. Report for General Electric Nuclear Energy, 1995.

Book Chapters

Loud JD, Blanchard R, Mimmack G. Electronic Failure Analysis Handbook. Chapters 16 and 20, McGraw Hill, January 1999.

Loud JD. Operations and Maintenance of the Datacord 2000 Locomotive Crash Recorder. Manual for Q-Tron Ltd., 1988.

Professional Affiliations

- » Institute of Electrical and Electronic Engineers—IEEE
- » Order of the Engineer (member)

Exhibit B

Mark J. McNeely, P.E., CFEI

Managing Engineer

Electrical Engineering & Computer Science



Contact Information

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Menlo Park

Related Capabilities

- » Communications & Networking
- » EMF / RF Exposure & Health
- » Intellectual Property
- » Medical Devices, Implants & Surgical Tools
- » Product Qualification & Recall Consulting
- » Software Consulting Services
- » Solar Energy

Professional Profile

Mr. McNeely's areas of expertise include cellular phone communications, call data record analysis, telecommunications products and infrastructure, Smartmeters, acoustics and acoustic product standards, wireless networks, broadband technology, cable television systems, fiber optic communication systems, biometric systems, RFID, 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 cause and origin fire 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

Credentials & Professional Honors

M.S., Electrical and Computer Engineering, University of Wisconsin, Madison, 2001

B.S., Electrical and Computer Engineering, University of Wisconsin, Madison, 1998

Licenses & Certifications

Registered Professional Electrical Engineer, California, #E18398

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

General Class Radio License "KJ6KOV"

sources, both amplifiers and oscillators, to transmission lines, antennas, and receiver systems.

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, Barra J, 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, Barra J, 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, Fröhlich 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.

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

Professional Affiliations

- » Institute of Electrical and Electronic Engineers
- » National Association of Fire Investigators—NAFI
- » National Fire Protection Association

Exhibit C

Ray K. Huang, Ph.D., P.E., CFEI

Managing Engineer

Electrical Engineering & Computer Science



Contact Information

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Related Capabilities

- » [Electric & Electronic Materials & Packaging](#)
- » [Electronics Component Reliability Consulting](#)
- » [Intellectual Property](#)
- » [Medical Devices, Implants & Surgical Tools](#)
- » [MEMS & Nanotechnology](#)
- » [Semiconductor Processing Technology](#)
- » [Semiconductors, Discrete Components & Printed Circuit Boards](#)
- » [Vehicle Electrical & Electronic Systems](#)

Professional Profile

Dr. Huang specializes in supplier and manufacturer quality, reliability as well as product failure and compliance analysis in the area of analog/digital consumer electronics both at component and system level. His area of expertise includes consumer product safety and failure analysis, quality and reliability investigation, system design and safety review, insurance, liability and intellectual property claim support and due diligence.

At Exponent, Dr. Huang has assisted clients with solving problems related to consumer electronics, household appliances, power adapters and power supplies, cleanroom fabrication equipment, automotive electronics, computer systems, MEMS actuators and sensors, biomedical devices and surgical tools, mobile devices, displays, network and communication equipment, credit card payment systems and circuit protection mechanisms.

The issues he has investigated involved product safety (CPSC), battery systems, electronics system and component assembly and manufacturing defects, solder joints quality and board contamination (IPC Compliance), electrostatic discharge (ESD), control and power circuit design issues, counterfeit devices, thermal and propagation faulting, integrity and survivability of vehicle electronics, and battery and energy storage failures.

Prior to Exponent, Dr. Huang's work at Caltech focused on the development and characterization of wireless circuitry and packaging platforms for bio-MEMS devices with retinal and neural prosthetic applications. Dr. Huang has hands-on clean room fabrication, equipment, and device failure analysis experience and has worked extensively on numerous bioimplantable devices, microfluidic lab-on-a-chip devices, pressure sensors and actuators and fabrication equipment.

Dr. Huang has a variety of teaching experience, including undergraduate and graduate level courses such as Computer Instrument Design, Introduction to Sensors and Actuators, VLSI and ULSI Technology, MEMS Technology and Devices. He also has broad experience conducting risk analysis, failure modes and effect analysis, accelerated life time testing and utilizing relevant standards, regulation, and codes including UL, IEEE, NFPA, NEC, ANSI, ASTM, IEC/ISO, and IPC to perform inspections and custom tailored laboratory testing.

Publications

Credentials & Professional Honors

Ph.D., Electrical Engineering, California Institute of Technology (Caltech), 2011
M.S., Electrical Engineering, California Institute of Technology (Caltech), 2006
B.S., Electrical Engineering, Cornell University, 2005

Licenses & Certifications

Licensed Professional Electrical Engineer, California, # 20293
Certified Fire and Explosion Investigator (CFEI) in accordance with the National Association of Fire Investigators (NAFI) National Certification Board
Crash Data Retrieval (CDR) Technician Levels 1 and 2

Patents

U.S. Patent: Pocket-enabled Chip Assembly Technology, submitted January 2010 (Huang R, Tai YC).

Languages

Chinese

Huang R, Nilsson S. Fuse selection criteria for safety applications. 2012 ISPCE, Portland, OR, November 2012.

Crane S, Huang R, Kisilitsyn M. Root cause analysis of failed capacitors and the capacitor plague. 2012 MS&T, Pittsburgh, PA, October 2012.

Chang J, Huang R, Tai YC. High-density IC chip integration with Parylene pocket. 2011 IEEE NEMS Conference, Kaohsiung, Taiwan, 2011.

Chang J, Huang R, Tai YC. High-density 256-channel chip integration with flexible Parylene pocket. Transducer '11, Beijing, China, June 5–9, 2011.

Huang R, Tai YC. Flexible parylene-based 3-D coiled cable. 5th IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Xiamen, China, 2010.

Huang R, Tai YC. Parylene to silicon adhesion enhancement. 15th International Conference on Solid-State Sensors, Actuators and Microsystems, Denver, CO, 2009.

Huang R, Tai YC. Parylene-pocket chip integration. 22nd IEEE International Conference on Micro Electro Mechanical Systems, Sorrento, Italy, 2009.

Huang R, Pang C, Tai YC, Emken J, Ustun C, Andersen RA, Burdick JW. Integrated parylene-cabled silicon probes for neural prosthetics. 21st IEEE International Conference on Micro Electro Mechanical Systems, Tucson, AZ, 2008.

Huang R, Pang C, Tai YC, Emken J, Ustun C, Andersen RA. Parylene coated silicon probes for neural prosthesis. 3rd IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Sanya, China, 2008.

Presentations

Huang R, Tai YC. Chip Integration with flexible parylene pocket. 5th International Conference on Microtechnologies in Medicine and Biology, Quebec City, Canada, 2009.

Rizzuto DS, Musallam S, Pang C, Huang R, Tai YC, Andersen RA. The Caltech Brain-Machine interface platform. Society for Neuroscience, Atlanta, Georgia, 2006.

Prior Experience

- ✦ Research Assistant, Caltech Micromachining Laboratory, California Institute of Technology, 2005–2010
- ✦ Intern, Hardware System Lab, Palo Alto Research Center, 2005
- ✦ Intern, Corporate Marketing, Applied Materials, 2004

Project Experience

Computer and Data Center Servers

Failure and root cause analysis of:

- Multi-layer printed circuit boards propagating arcing failure
- Connecting mechanism failure
- Temperature control and safety mechanism evaluation

Fabrication Technology

- Due diligence of pressure sensor manufacturing technology
- Failure and root cause analysis of chemical vapor deposition systems (CVD), etching systems (RIE), lithography systems and metallization systems (Sputtering, E-Beam)
- DRAM fabrication technology intellectual property analysis

Electronic Components

Failure and root cause analysis, and reliability testing of

- Electrolytic, surface mount and high power capacitors
- Resistive, axial, radial fuses
- Power switching FET and Diodes
- Vibrating motors
- Camera modules
- LEDs (Light Emitting Diodes)
- Connectors modules and cables
- RFID communication

Electrical Appliances

- Power supplies failure analysis – filtering capacitor failure
- Power supplies failure analysis – conductive filament short circuit fault
- Fire investigations of rice cookers, coffee makers, power strips, etc.
- Network adapter safety evaluations
- Cell phone failure analysis – LCD screen connectors
- Cell phone failure analysis – flexible cables and ACF failures
- Cell phone failure analysis – on-board electrical components
- Charger connectors and power adapters
- Alcohol monitoring devices

Computer Software and System Memory

- Vehicle electronics memory survivability and integrity analysis
- Counterfeit RAM chip investigation and screening
- Software package IP claim chart construction

Biomedical Applications

- Implantable device fabrication technology due diligence
- Implantable hybrid cable failure analysis
- Surgical tool electronics failure analysis
- Glucose monitor circuitry failure analysis
- Near-field communication and power transfer

Professional Affiliations

- ❖ Member of IEEE
- ❖ Tau Beta Pi
- ❖ Eta Kappa Nu