

IEEE Communications Society



Development of a Certification Program in **Wireless Communications Engineering Technology**

“WCET”

June 2007 Status report



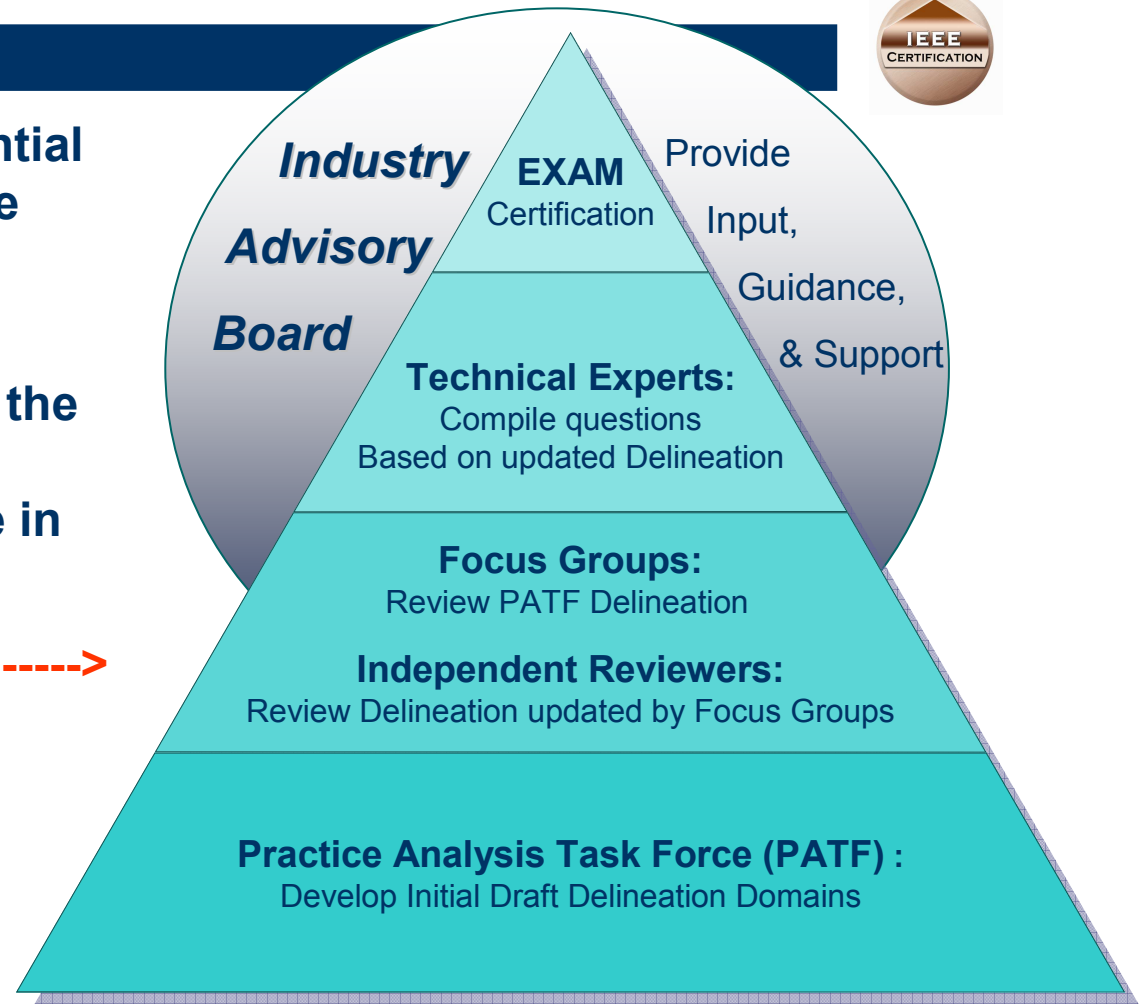
IEEE ComSoc WCET Certification



Customers are the potential certificate holder and the employers of certificate holders.

Chosen demographic is the 3-5 year engineering practitioner, with degree in EE or related discipline.

June 2007, on schedule ----->



Practice Analysis Task Force (PATF) 2-3 Face to Face Meetings, Teleconferences



- 4-5 December 2006, meeting with 16 of 20 PATF members to develop initial draft delineation of Domains of Responsibility, Tasks, and Knowledge for the certification initiative. (12 industry, 4 academic, from 7 different countries.)
- Teleconferences
- 21-22 May 2007, meeting with 16 of 20 member PATF to incorporate focus group and independent reviewer feedback and finalize the delineation.

Regional Focus Groups



- Schedule for 2007 Regional Focus Groups

- Feb15/16 Barcelona, 2 groups @ 3GSM
- Mar 7/8 Lima, 2 groups @ IEEE Region 9
- Mar 14/15 Hong Kong, 2 groups @ WCNC
- Mar 22/25 Kuala Lumpur & Kota Kinabalu, Malaysia @ IEEE Region 10
- March 27/28 Orlando, 2 groups @ CTIA Wireless
- April 14 Sofia, Bulgaria @ IEEE Region 8

Focus Group Participation



- Organized by Jack at 3GSM, John at WCNC, Celia at Regional meetings, Rolf Frantz (Industry consultant) at CTIA
- 7-14 at each session
- Typically > than 90% from industry
- Sessions scheduled for 2-3 hours have run 3+ hours with high level of interest and participation.
- Celia ran Regional meetings, Sandy Greenberg (PES) ran the others.

2007 Progress



CERTIFICATION CORNER

WIRELESS COMMUNICATIONS ENGINEERING TECHNOLOGY: AN UPDATE ON CERTIFICATION

ROLF FRANTZ

As readers of the President's Page in the December and January issues are aware, IEEE's New Initiatives Committee is providing support for ComSoc to develop an IEEE ComSoc Wireless Communications Engineering Technology (IEEE ComSoc WCET) certification program. The January issue included a photograph of the members of the Practice Analysis Task Force (PATF) which met in New York City in early December to begin identifying the areas of responsibility ("domains"), specific tasks within those areas, and knowledge that might be expected of engineering practitioners seeking certification via the IEEE ComSoc WCET program.

While the PATF meeting was very successful in developing a draft delineation of the domains, tasks, and knowledge, that's only the first step. At this writing, the PATF members are reviewing the draft, critiquing the content, and providing feedback for improvement. Their comments are being compiled into a revised delineation for wider review, which will take two forms: Independent Reviewers will be sent copies of the document and asked to provide detailed comments on it. Is it complete, thorough, clear, and unambiguous? Are there overlaps, duplications, or unnecessary topics? Simultaneously, a series of global Focus Groups are being organized, in which experienced practitioners will be asked to review and discuss the delineation and share suggestions for improving it. The first Focus Groups were held during the 3GSM Conference in Barcelona on February 15 and 16. Subsequent Focus Groups will be held at WCNC in Hong Kong on March 14 and 15, and at the CTIA conference in Orlando, FL on March 27 and 28. Focus Groups are also tentatively planned for the IEEE Region 8 meeting in Bulgaria, the Region 9 meeting in Peru, the Region 10 meeting in Malaysia, and during the Sarnoff Symposium in New Jersey at the end of April. Readers who wish to volunteer to perform an online Independent Review or to participate in any of these Focus Groups can do so at <http://www.comsoc.org/cert>, where links will be found to the sign-up sites for each of these opportunities. Readers are also encouraged to watch this web site for future

opportunities to volunteer to participate in this project.

Once feedback from the Independent Reviewers and Focus Groups is compiled and incorporated into a revised delineation of domains, tasks, and knowledge, a large-scale survey of wireless communications engineers will be conducted to validate the delineation and develop empirically-derived exami-

The current goal is to generate questions during the coming summer and fall, and develop initial versions of the examination this fall and winter

nation specifications. Only after these multiple and rigorous steps will the delineation become the basis for the subsequent stage: formulating valid and reliable certification procedures, including objective examinations.

As the scope of these meetings, reviews, and surveys indicates, every effort is being made to solicit inputs from the broadest possible range of stakeholders in wireless communications. The cross section of the industry includes representatives from network operators, equipment manufacturers, and academia, at all stages of their careers. North and South America, Europe, Australia, and all parts of Asia are being surveyed and included in the effort. The intent is that the final profile of the practitioner in wireless communications engineering technology, which will form the basis for the IEEE ComSoc certification program (including initial and renewal certification procedures, examinations, and study materials), will be the best consensus view that can be developed from practitioners and other key stakeholders in the industry.

The current goal is to generate questions during the coming summer and fall, and develop initial versions of the examination this fall and winter, in preparation for going live in 2008. Reports similar to this will be published during the year to keep ComSoc members up to date on the status of this project.



Independent Reviewers



- A task force of 55 independent (volunteer) reviewers currently active in the Wireless Communications industries began work on 23 March 2007.
- Independent reviewers each had a 2-3 hour task. Their input and the focus group results was reviewed on 21st and 22nd at the PATF2 meeting in NYC.

Technical Experts



- A Validation Survey based on the final version of the Delineation will be sent to over 5000 industry professionals with the purpose of validating the Delineation against actual work experiences captured in the Survey.
- Using the validated delineation as a framework, technical experts throughout the industry will write questions based on selected portions.
- A base of 600+ questions will be compiled, from which a predetermined number of questions will be selected for each testing session.

Industry Advisory Board



- Throughout the process of developing the certification exam, a board of advisors will be recruited consisting of senior members of both large and small companies in the wireless industry.
- This board will provide guidance as to the needs of their companies and how they intend to make use of the certification.
- Industry input and support will be invaluable to the success of any certification project.
- Most important (**Critical**) Goal: A substantial list of “early endorsing” companies

Next Steps- Phase One

Phase One: Development of Test Specifications

- Validation Survey
 - Pilot Version – Review Pilot Results
 - Fine Tune Survey
 - Mass Distribution Version, 5000+ on-line mailings
- Finalization of Validated Delineation
- Prepare Test Specifications
- Create “Style Guide” Item Writers - includes how to write good “wrong” answers also known as “distracters”

Next Steps- Phase Two

Phase Two: Item and Exam Development

- Create Glossary of Terms
- Determine Test Reference Materials
- Create Item Database – Up to 100 SMEs
- Review and Validate Items – Item Review Committee
- Compile Examination – Exam Committee
- Give initial test, determine Passing Point for Exam

Upcoming Deliverables

- WEBOK: A Wireless Engineering Body of Knowledge will be created as a study tool for the exam. This BOK will not directly reference the exam in order to comply with the requirements set forth by ANSI regulations.
- Certification Candidate Handbook: Will be available to anyone looking for information about the WCET. Included application process, reference materials lists, and descriptions of areas of knowledge included in exam.
- Practice Tests: There will be two sorts of practices test created. The first available will be samples of the types of questions that could be used on the actual exam. The second that will eventually become available will be created from actual questions that have been used on the exam but have since been retired.

Web Site

ComSoc Certification in Wireless Communications Engineering Technology

Program Director and
Steering Committee Chair



Celia Desmond

Program Manager



Jack Howell

Industry Relations
Manager



Rolf Frantz

ComSoc is developing a certification program in **Wireless Communications Engineering Technology (WCET)**.

Certification: a designation earned by a person to certify that s/he is qualified to perform a job. Certification indicates that, in the view of the certifying body, the individual has a specific set of knowledge, skills, and/or abilities. Professional certifications are awarded both by professional bodies and by corporations.

Our envisioned IEEE certificate holder is an engineering practitioner with a bachelor level degree in EE or a related field, with 3-5 years of experience, working in any industry and anywhere in the world.

THE "PATF"

A Practice Analysis Task Force (PATF) comprised of 16 wireless professionals from around the globe met in December 2006 to develop a draft delineation of the domains (areas of responsibility), tasks, and knowledge that might be expected of engineering practitioners seeking WCET certification. This draft delineation underwent a detailed review (see "Soliciting Feedback" below) by industry experts and experienced wireless practitioners. ([Click here to see a list of the PATF members and photos.](#))

In May 2007, the PATF reconvened to discuss all of the comments from the Focus Groups and Independent Reviewers. They revised the delineation in numerous ways, benefiting from the detailed and thoughtful comments they received. The revised delineation will soon be tested via a Pilot Survey. [Click here to indicate your interest in participating in this Pilot Survey.](#)

Marketing Manager



John Pape

Finance Manager



Bruce Worthman

Project Manager &
Administration



Jean Niblett

SOLICITING FEEDBACK

As part of the development of the delineation, feedback was solicited through Focus Groups held at industry and IEEE meetings around the world, and through detailed comments provided by Independent Reviewers.

Focus Groups consisting of experienced wireless practitioners discussed the delineation in sessions lasting two hours and longer, and shared their detailed suggestions regarding its structure and content. These groups met during the following industry conferences and IEEE Regional meetings:

- 3GSM, Barcelona, Spain, February 15 & 16 [Participants / Photos](#)
- IEEE Region 9, Lima, Peru, March 7 [Participants / Photos](#)
- WCNC, Hong Kong, March 14 & 15 [Participants / Photos](#)
- IEEE Region 10, Malaysia, March 22 & 25 [Participants / Photo](#)
- CTIA WIRELESS, Orlando, Florida, USA, March 27 & 28 [Participants / Photos](#)
- IEEE Region 8, Sofia, Bulgaria, April 14 & 15 [Participants / Photo](#)

In addition, a dozen industry experts provided feedback as Independent Reviewers. They each spent several hours reviewing the delineation and providing very detailed feedback on both the organization of the delineation and the individual task and knowledge statements. ([List of Reviewers](#))

Want to participate, keep up to date?



- To participate: <http://www.comsoc.org/cert> and follow the link to the *Pilot Survey* ,
- To stay current: click on copies of monthly “Certification Corner” column in Communications Magazine

Or Email...

- Celia, c.desmond@ieee.org or
- Jack, j.howell@comsoc.org