



Communications Society

Survivability Issues in Wireless Access Networks

David Tipper, Dept. of Information Science and Telecommunications
University of Pittsburgh



Research and development on the survivability of communication networks has largely focused on public switched telecommunication networks and high speed data networks. Very little attention has been placed on the survivability of wireless access networks such as those used to support cellular phone communication. This talk will provide an overview of the survivability issues in wireless access networks focusing on mobile phone systems. A multi-layer framework for the study of wireless access network survivability is proposed. Metrics for quantifying network survivability are identified at each layer. A discrete event simulation of a GSM network is used to quantify the impact of a variety of failure scenarios. It is shown that user mobility significantly worsens network performance after even small failures as disconnected users move among adjacent cells and attempt to reconnect to the network. Thus, survivability strategies must be designed to contend with spatial as well as temporal network behavior.

Place: Room 404, SIS Building, University of Pittsburgh
135 N. Bellefield Ave.
Date: January 19th, 2001
Program: 2:00 to 3:00 PM

Industry Applications Society

K-Factor Distribution Transformer - An Update Report

Nigel P. McQuin, Electrical Power Consultant



Distribution transformers loaded with non-linear loads are subjected to harmonic currents that produce increased heat losses and temperature rise. These loading conditions are becoming increasingly important with the widespread use of adjustable speed drives, electronically controlled equipment, and "smart" office loads. Non-linear loading has been contributing to failure of transformers that are not specifically designed to handle such loads, and the situation is being given special attention by certification and standards organizations.

Mr. McQuin will discuss the philosophy behind the newly published Standard C57.110 and the comparative calculation method for the K-Factor and the new Fhl Factor. The process and difficulties of performing qualification tests, instrumentation and test facility needs will also be discussed. Examples of design features that can give rise to premature winding and shield failures will be presented on recent forensic failures.

Place: George Westinghouse Science & Technology Center
Churchill, Beulah Rd, Exit 13 off Parkway East (Route 376)
Date: January 16th, 2001
Program: 7:00 PM Technical Program
6:00 PM Coffee, sodas and fellowship

Note: All attendees to this meeting must be listed with the Security Officer located at entrance to the Center. Please call to register your intent to attend. Contact Tony Furfari at (724) 873-0828 or via e-mail at tfurfari@stargate.net.



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Engineering in Medicine and Biology

An EMBS chapter of the Pittsburgh IEEE section is in the primary formation stages. All section members are invited to join to help make this society chapter a forum that will benefit all of us.

This chapter will be a means for industry, research, and education to come together and exchange knowledge with the common thread of Electrical Engineering and Medical Research. There will be a kickoff meeting planned for early 2001. The goal of the meeting will be to form ideas on the general direction of the chapter, establish a vision, firm up a charter, brainstorm ideas, and to get acquainted. The point of having such a diverse society is to learn more from one another.

Please contact Bob Brooks at (412) 767-2400 ext 3543 or rbrooks@ieee.org. Bob looks forward to hearing from all those that are interested in this chapter.

2000-2001 Pittsburgh Section IEEE Program Calendar

Group/Society	September	October	November	December	January	February	March	April	May
ExecCom Ray Valentine (724) 733-5083	21 Point Park	19 WVU	16 Point Park	21 Point Park	18 Point Park	15 Point Park	15 Point Park	19 Point Park	17 Point Park
Section Mtngs Ray Valentine (724) 733-5083	16 Fall Picnic	25 SPICE Tutorial	1, 8, & 15 SPICE Tutorial			16-24 National Engineers Wk		History Dinner	
Upper Mon Biswajit Das (304) 293-6371									
Industry Applications Harry Hagerty (412) 487-8235	19 Fuse Protect. Medium Volt. Power Sys.				16 K-Factor Distribution Transformer				
Magnetics Miklos Gyimesi (412) 268-2308									
Computer Gerry Kumnik (412) 487-1430		26 Distributed Architecture							
Communication Prashant Krishnamurty (412) 624-5144					19 Wireless Access Networks				
Power Eng. Gregory Reed (724) 772-2158									
Membership Jim Karn (412) 732-9000									
Signal Processing Pat Loughlin (412) 624-9685		16 Excising Interference							
PACE Dennis Steward									

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