

# NARTE NEW CERTIFICATIONS IN 2002

## NARTE CERTIFIED EMC TEST LABORATORY ENGINEERS

Mr. Jerry Oglesby 12/18/2002

## NARTE CERTIFIED EMC ENGINEERS

Mr. Norihiko Akasaka 12/06/2002  
 Mr. Ronald R. Amundson 09/26/2002  
 Mr. Shintaro Aoki 12/09/2002  
 Mr. John Robert Barnes 11/22/2002  
 Mr. Michael J. Bosley 07/05/2002  
 Mr. Carl B. Boyette, III 06/06/2002  
 Ms. Susan L. Brocchi 08/22/2002  
 Mr. James Burgard, Jr. 09/26/2002  
 Mr. Bruce Durwin Conner 03/21/2002  
 Mr. Bruce Curry 01/25/2002  
 Mr. David R. Cuthbert 04/04/2002  
 Mr. Mitchell Funk 08/30/2002  
 Mr. Kenzo Furuta 12/06/2002  
 Mr. Hiroki Goto 12/06/2002  
 Mr. Russel J. Governale 01/10/2002  
 Mr. Tetsushi Hazuku 12/06/2002  
 Mr. Gordon L. Helm 05/23/2002  
 Mr. Jim Hwang 02/06/2002  
 Mr. Masashi Inagaki 12/09/2002  
 Mr. Noriyoshi Kaneko 12/09/2002  
 Mr. Tom Karas 02/21/2002  
 Mr. Yasushi Katayama 12/06/2002  
 Mr. Katsuyuki Kawamata 12/06/2002  
 Mr. Masami Kita 12/06/2002  
 Mr. Takenobu Kobayashi 12/06/2002  
 Mr. Takeshi Kobayashi 12/16/2002  
 Mr. James L. Kohler 07/05/2002  
 Mr. Tomohiro Kourin 12/06/2002  
 Mr. Yonezo Kubota 12/06/2002  
 Mr. Motoharu Mizutani 12/06/2002  
 Mr. Norihiro Morimoto 12/06/2002  
 Mr. Sei Nagatsuka 12/06/2002  
 Mr. Hiroaki Nakaya 12/06/2002  
 Mr. Sumio Nishii 12/09/2002  
 Mr. Yoshitsugu Okuda 12/06/2002  
 Mr. Jack Prawica 09/26/2002  
 Mr. John M. Reske 10/09/2002  
 Mr. Michael A. Roberts 12/18/2002  
 Mr. Yasuhisa Sakai 12/09/2002  
 Mr. Yoshikazu Sakai 12/06/2002  
 Mr. Munehiko Seita 12/09/2002  
 Mr. Hironobu Shimoji 12/06/2002  
 Mr. Takaaki Sone 12/06/2002  
 Mr. Takashi Sonoda 12/06/2002  
 Mr. Raymond J. Stein 10/09/2002  
 Mr. Shingo Suzuki 12/06/2002  
 Mr. Eijiro Takao 12/06/2002  
 Mr. Wataru Takeda 12/06/2002  
 Mr. Yuzo Tanaka 12/09/2002  
 Ms. Quan Yen Truong 09/06/2002  
 Mr. Marius Turculet 06/06/2002  
 Mr. Yasuhiro Umano 12/06/2002  
 Mr. Takanori Uno 12/09/2002  
 Mr. Osamu Watatani 12/09/2002  
 Mr. Minoru Yamanaka 12/09/2002  
 Mr. David J. Zimmerman 12/04/2002  
 Mr. Ronald W. Zimmerman 03/06/2002

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 Mr. Kazuyuki Hayase 12/06/2002  
 Mr. Yukio Kajita 12/05/2002  
 Mr. Hiroaki Kawada 12/16/2002  
 Mr. Yoichi Kubo 12/05/2002  
 Mr. Fumiaki Matsuo 12/06/2002  
 Mr. Samuel I. Nickels 01/24/2002  
 Mr. Jerry Oglesby 09/25/2002  
 Mr. Akio Sato 12/05/2002  
 Mr. William Stokes 09/25/2002  
 Mr. Hiroshi Sugita 12/05/2002  
 Mr. Tim Travis 09/06/2002  
 Mr. Scott L. Woodard 10/23/2002  
 Mr. Hiroyuki Yasuda 12/11/2002

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 Mr. Daniel H. Berger 08/21/2002  
 Mr. John A. Chery 05/23/2002  
 Mr. Robert E. Dahlke 10/09/2002  
 Mr. Charlie H. Greenberg 08/06/2002  
 Mr. Christopher L. Griffith 08/06/2002  
 Mr. Craig M. Guilbault 08/06/2002  
 Mr. Kelvin Inluc 10/09/2002  
 Mr. Kevin R. Knight 03/06/2002  
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 Mr. Jud Michael Parker 06/10/2002  
 Mr. David O. Patton 12/18/2002  
 Mr. Jason S. Pustejovsky 12/18/2002  
 Mr. Justin P. Richter 05/23/2002  
 Mr. Bryan J. Rogers 05/23/2002  
 Mr. Sean R. Rose 10/09/2002  
 Mr. Michael M. Simpson 07/05/2002  
 Mr. Rod J. Snook 08/06/2002  
 Mr. Paul T. Staley 08/06/2002  
 Mr. Clifford Stokes 02/21/2002  
 Mr. Jose M. Suchite 06/20/2002  
 Mr. Jason Cully Templeton 05/23/2002  
 Mr. Daniel M. Thuss 09/25/2002  
 Mr. Hoa Tran 08/06/2002  
 Mr. Ger Vang 08/06/2002  
 Mr. Kevin Walsh 11/12/2002  
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 Mr. Mark M. Miller 10/23/2002  
 Mr. James E. Smith 02/06/2002  
 Mr. Richard Wilson 11/20/2002

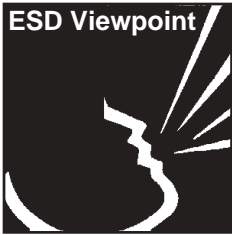
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 Mr. Daniel F. Smart 08/07/2002  
 Ms. Dawn Lynn Smith 08/07/2002  
 Mr. Elmer Smith 05/23/2002  
 Mr. Dale A. Spangler 11/20/2002  
 Mr. Bryan G. Sparkes 05/23/2002  
 Mr. Antonio D. Stevenson 01/24/2002  
 Ms. Bercedia S. Stewart 05/23/2002  
 Mr. Sinaca L. Stinson 06/20/2002  
 Mr. Andrew N. Stradling 09/25/2002  
 Mr. Michael T. Stricker 09/06/2002  
 Mr. David E. Sumner 05/23/2002  
 Mr. Suheil Suoudi 08/22/2002  
 Mr. Marc C. Tarplee 05/09/2002  
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 Ms. Patricia K. Thompson 04/04/2002  
 Mr. Kerry J. Tobias 09/26/2002  
 Mr. Anthony Tran 01/09/2002  
 Mr. Peter P. Tran 09/06/2002

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# “FOR NARTE MEMBERS ONLY” (A Look At Conductive Fabrics)

*It is a privilege to write this new column for the NARTE News. I'll keep it useful and lively. These are my own personal views, not NARTE policy. Comments and dissenting opinions are encouraged. This is how we all learn.*

**E**lectrically conductive fabrics are a fairly new product. While designed for electromagnetic shielding, they have many other potential uses, too. They reflect radar and infrared signals, and one could probably make antennas out of them. They certainly could make handy, fold-up ground planes. BEMA, Inc., a world leader in its field, uses them to make shielded tents.

At TEMPEST INC. we have tested samples of most (possibly all) of the conductive fabrics currently being made in the world. They come in a wide variety.

Some look like satin. Others are stretchy, like T-shirt material, and others feel more like the burlap that is sometimes used for wallpaper.

I won't go into details about their shielding effectiveness in dB, but they can be used to make effective shields at UHF frequencies. Working with them requires special techniques. They are not like metal sheets and foils.

## Fabric vs. Metal Sheets

Why use conductive fabric instead of metal sheets? Fabrics are expensive. No one would argue that a great deal more galvanized steel could be purchased for the same price, and steel makes a better shield. But consider this: fabrics can be folded up. Since they are floppy, they can sustain the effects of vibration better than metal sheets or foils can.

Testing them has some unique pitfalls. This is why the same fabric sometimes gets different results when tested by different, perfectly competent, Electromagnetic Compatibility laboratories.

We have worked out these pitfalls using proprietary techniques. Consequently, we are getting repeatable, consistent results, but I now have a couple of new gray hairs!

## Fabric Production

Most conductive fabrics are made essentially the same way: a standard polyester fabric is plated or coated on the outside with a metal, such as nickel. The surface conductivity is good, but there are questions about the long-term effects of abrasion. There are also questions about allergic reactions for those people who are allergic to nickel. This could be a problem if you are manufacturing something like a shielded vest. Testing for allergenic properties requires special protocols and clinical trials. We have not been asked to do this yet.

One firm makes a conductive fabric that is unique. Using patented, advanced technology they take hair-thin, silver plated copper wires and they wrap them with polyester to form a unique type of thread. (Threads are called “yarn” in the fabric industry.) This yarn is then woven into a fabric that you have to see to believe. Most EMC engineers don't believe it is conductive until they try it. It looks and feels like regular cloth, and comes in a variety of colors. It provides good shielding effectiveness, but like all the other fabrics it is tricky to work with and test.

Just for fun, I washed a sample with detergent in really hot water (190 degrees F). I let it soak for a few hours, let it air-dry, and then re-tested its shielding effectiveness. I found no difference.

The fabric is rugged and, as far as I can tell, nearly fireproof. The only way I have been able to get it to ignite is by dipping it in oil first.

The fabric is made in Switzerland by Snowtex AG, part of a 100-year-old family owned firm that also makes seat covers for high-end cars like Volvo and Mercedes.

We have lots of this stuff left in the lab. If you would like to see a sample, send me an e-mail. I will be happy to send small samples to NARTE MEMBERS ONLY. ☺

Regards,  
lou@tempest-inc.com

## NARTE Prepares for, Tutors and Proctors Tests Around the World



*Shannon Reynolds (left) and Sandy Felone prepare your new certificates for mailing from NARTE headquarters. Photo by Laura Holmberg.*



*Dr. Jim Whalen, a regular and long time NARTE exam development specialist, conducting a tutorial at an IEEE EMC Symposium. Photo by Dick Ford.*



*(Left-right) Arlene and Russ Carstensen, and Don Sweeney, during an EMC exam at IEEE EMC Symposium (Seattle). Photo by Dick Ford.*

## NARTE Certifications, continued from page 13

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Mr. Leo D. Vernon	05/09/2002	Mr. Shawn R. Weitzel	04/04/2002	Ms. Vernita L. Bryant	03/21/2002	Mr. Corey Kerzmann	12/04/2002
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Mr. Lonnie Walker	07/25/2002	Mr. Steven K. Whipple	08/07/2002	Mr. Apostol Chiper	04/04/2002	Ms. Tonyette D. Leak	02/06/2002
Ms. Tawande B. Walker	05/09/2002	Mr. Jeffrey A. White	12/04/2002	Mr. Alberto J. Delgado	02/21/2002	Ms. Angela R. Lemons	02/06/2002
Mr. Eric S. Waller	04/04/2002	Mr. Robert L. Yadon, Jr.	08/07/2002	Ms. Tavonne A. Enoch	09/25/2002	Mr. Boris A. Mirkin	05/23/2002
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Mr. David Hugh Waterman	07/09/2002			Ms. Rahketa R. Hale	01/24/2002	Mr. Antonio Silvia, Jr.	04/18/2002
Mr. Mark W. Way	04/04/2002			Mr. Jonathan L. Harmon	11/20/2002	Mr. James A. Swords	09/06/2002
		<b>NON-CERTIFIED MEMBERS</b>					
		Mr. Kent D. Bass	12/04/2002				