



NARTE
NEWS
Volume 24 Spring 2007 Number 2



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Headquarters Highlights

SPRING 2007

by **Brian F. Lawrence, Executive Director**

Board of Directors Meeting

The next Board of Directors meeting will be held at NARTE Headquarters on Saturday, May 5th. We hope to welcome our two new members of the board: Russ Carstensen, our previous executive director, and Mike Violette, president of Washington Laboratories Ltd., a testing and engineering firm.

At this meeting we expect a lively discussion centered around a five-year business plan to be presented by Brian Lawrence to the Board.

NARTE to Cooperate with IEEE Communications Society in Developing New Program

As reported in December 2006, the NARTE Board of Directors approved a plan to cooperate with the IEEE Communications Society in developing a new certification program. The basis for the initial certification is wireless cell phone communications engineering. Phase one of the program development has been the formation of a volunteer task force drawn from a diversity of backgrounds, including industry, research institutes and academia. The task force, which includes a number of NARTE members, held its first meetings in early December and has started a road map to define the critical professional attributes of engineers working in this communications field.

At this time NARTE has received no direct report of progress from the Communications Society, nor have we been requested for assistance in developing their program. We have extended an invitation to the Society to update us on their work and we hope to report this in future NARTE News issues.

IEEE EMC 2007 in Hawaii

To mark the 50th anniversary of the IEEE EMC Society, the 2007 IEEE EMC Symposium is being

held in Hawaii, the 50th state, from July 8th to 14th. NARTE intends to support this event, and as usual we will hold a NARTE certification examination for EMC and ESD Engineers and Technicians at the end of the conference programs.

EMC 2007 will also feature the Global EMC University, a series of tutorials conducted by world renowned experts. The NARTE workshop, which offers information and instruction to prospective examination candidates, will be a part of the first day's Global University event, "An Introduction to the Fundamentals of EMC" on Sunday, July 8th. The Global University tutorials will continue until Thursday, July 12th, and the NARTE Certification examinations will be held on Saturday, July 14th. Friday, July 13th will feature an island tour for all attendees. Alternatively, NARTE examination candidates can forgo the tour and spend the day revising for the task ahead.

NARTE hopes that this schedule will encourage all those attending the Global University to also take this opportunity of achieving certification of their engineering knowledge and skills.

A full listing of the EMC 2007 workshops and the Global University courses will be published in the near future on the event website, <http://www.emc2007.org>.

29th Annual EOS/ESD Symposium and Exhibition

This year the EOS/ESD Symposium will be held from September 16th to the 21st at the Disneyland Hotel, Anaheim, California. The ESD Association has extended an invitation to NARTE to exhibit during the event and to hold our NARTE Certification Examinations on Friday September 21st.

The ESD Association runs its own focused training programs through the year and offer its own certification tests for ESD Project Managers and Designers. These tests will be held on the same day, Friday, September 21st. As a result, all attendees and Association members will have the option to take tests

for the ESD Association certification or for the independent NARTE Certification. It is our strong recommendation that anyone interested in developing their professional standing in this industry should give serious consideration to obtaining certification by both the ESD Association and NARTE. There are clear benefits to both, with NARTE offering the program that is internationally recognized and administered in accordance with the ISO/IEC 17024 guidelines.

2007 IEEE Symposium on Product Compliance Engineering

The IEEE Product Safety Engineering Society, with whom NARTE has a formal Memorandum of Agreement for mutual support and co-operation, sponsors this event. The symposium is set for October 22nd and 23rd, 2007, at the Radisson Hotel and Conference Center in Longmont near Denver, Colorado.

NARTE will be present at this event with a booth in the exhibition area. We will also hold a certification preparation workshop on Monday, October 22nd and a full certification examination on Wednesday, October 24th.

NARTE Examination Sessions For 2007

NARTE is able to provide new examination papers every 90 days, if required, and we can schedule examination sessions at one of our authorized test centers almost upon demand. However, we do encourage all certification applicants for any discipline to attend one of our regular examination sessions, such as those that we link to a symposium or convention.

One of our more popular sessions in recent years has been linked to the IEEE EMC Symposium, which changes location each year. This year to celebrate its 50th anniversary, the IEEE EMC Society Symposium will be in Hawaii. We realize that this might present travel difficulties for many certification applicants. However, as can be seen above, NARTE will hold examination sessions on September 21st at the Disneyland Hotel, Anaheim, and again on October 24th at the Radisson Hotel, Longmont, Colorado.

These exams are linked to ESD and Product Safety Engineering certification, but any applicant for NARTE certification in any discipline may attend. NARTE can arrange to have available examination papers for both Engineers and Technicians in any field that we support at either location.

NARTE Programs in Asia

As reported in the December issue of NARTE News, I will be visiting Singapore and Japan on my way to the EMC 2007 event in Hawaii. I thought this would be the extent of my Asian travel this year, but that is not to be. Since my last report, I have been able to find other highly qualified organizations in China and in Korea that are very interested in offering NARTE certification programs.

So a trip to Beijing is planned at the end of May. Fortunately, this trip can be arranged to coincide with an EMC Symposium at the International Exhibition Center in Beijing, which will be attended by the association I had planned to visit in Korea. So, it looks like all my meetings can take place in China.

The three different organizations I will have discussions with are:

Southeastern University, Nanjing – Already offers EMC training classes and is interested in adding NARTE EMC Certification examinations. This institute will consider Telecommunications Engineering later.

ESD-China/Beijing Municipal Institute of Labor Protection – ESD China is a small organization offering training in ESD design and management. It is teamed with the Beijing Institute which will submit qualifications to be an authorized test center. This group is only interested in ESD certification.

Korea Radio Awareness Promotion Association, (RAPA) – This association has good connections with KEC in Japan. They already offer EMC training and would like to add NARTE certification examinations. Later they would consider adding Telecommunications examinations if our technology is applicable. This group has already provided evidence that has been accepted as suitable for them to be an authorized test center.

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A Look at Part 15 Interference Problems

By David A. Case NCE, NCT
Cisco Systems Inc.
Richfield, Ohio

It is surprising how much misinformation on interference from Part 15 unlicensed wireless systems and how these issues are addressed is actually out there. One only needs to read some of the comments filed by various services on how Part 15 radio devices, specifically WLAN, interfere with their systems.

Reading some of the responses and in conversations with various wireless manufacturers of licensed equipment, it seems that Part 15 devices are worse than the black plague. However, when one takes a good look at the problem, the actual issues become less frightening and actually manageable.

Basic Issue

For a majority of people working in the field of EMC on Part 15, if we are really lucky the work is restricted to lab work and making the systems comply. For most this seems the typical norm – test the system, do any engineering fixes to bring it into compliance, prepare the report and either issue a Declaration of Conformity or submit it for certification.

However, anyone doing wireless, whether Part 15 or one of the other parts of the FCC rules, knows that interference is a fact of life. The real issue is how to manage it.

For some reason, whether right or wrong, some believe that because it is a licensed service this means the interference can be managed whereas Part 15 cannot.

However, no one can explain to me how the FCC knows the culprit device because it is licensed. For example, I have seen wireless Part 24 handsets interfere with other licensed equipment when placed in close proximity to the other device. Even though the system operates on a licensed service, the device itself cannot interfere with other devices. Further, if the license is held by the service provider – not the user of the cell phone – how does the FCC know what device actually caused the interference?

The major difference between a licensed service and an unlicensed service from the interference perspective is that the licensed service is protected from unwanted harmful interference and the Part 15 device has no protection from interference.

Part 15

One needs to remember that under Part 15 of the rules, 1) one must not cause interference and 2) the device must accept interference. In other words, we cannot cause interference and must accept interference.

Do interference issues exist? Yes. For example, some of the telecom companies have banned or restricted WLAN devices from their switching stations because their equipment (Part 15 unintentional radiator devices) are subject to interference from WLAN devices. The problem is not the WLAN device but the fact that the industry standard the devices are tested to for immunity does not adequately test real-world transmitter fundamental emissions from a WLAN. Is the case an FCC issue? No because it involves only Part 15 equipment, and is being addressed by WLAN manufacturers and makers of the various telecom equipment manufacturers.

Post Product Audits

The first item most people are familiar with is the post grant audit done by the agency or TCB. The first audits are simply audits from TCBs who are required to do a number of post grant audits a year as part of their program.

The second type of audit is not so fun. This one generally starts with either having a competitor or consumer file a complaint. It should be noted that a vast majority of the audits done by the FCC are because of complaints filed by competitors or from problems reported by users in the field.

If the audit is of a Declaration of Conformity or

product that required verification, the FCC generally first wants to review the test report. Note that sending a test report dated after the date of the letter is probably the worse thing one can ever do, although some have done that. If the report looks satisfactory, that may be all that occurs, or they can request a product audit.

If the product is certified they will likely request a sample of the device for their testing. It must be a production product, never before tested or the box opened up.

If the device audited meets the requirements, then the issue becomes one of operation and/or installation. Depending on what is being interfered with will determine the FCC course of action.

If it is another Part 15 device, then the user is told to correct it himself or to turn off one device when he operates the other. The FCC will also send him their book on solving interference problems.

When it affects a license service such as an amateur radio service, the FCC may request more from the Part 15 user. However, if the licensee is also the one with the Part 15 device that is interfering, then he is told to fix it.

Field Issues

Though a post grant audit is far from fun, there are always worse things that come along. The first is addressing interference to the installed system. There are a number of causes for this, both internal to the system as well as external.

Internal causes in part are caused by some of

the issues addressed earlier in this article, others are from system installation. For example if an RLAN network is improperly set up, it could interfere with itself. Self-generated problems include poor antenna placement, bad coax cables, multi-path or reflected signals or even so simple as adjacent systems all programmed to the same channel set. These issues can generally be troubleshot somewhat easily.

The next issue is interference from a source outside the system. Depending on the source may make how to address it interesting. If it is another Part 15 system, say a RLAN system installed in a neighboring building, one has several options to address. The solution could be as simple as selecting another channel or reorienting your antennas. You may be able to work with the operator of the other system to work out interference issues. In either case, do not expect a lot of or any help from the FCC. The FCC does not get involved with Part 15 to Part 15 interference issues (except by sending out its famous book on resolving interference). The only result of the complaint may be to call either or both systems in for an audit.

The next issue is whether you receive interference from a Part 18 service while you are operating in an ISM band or receive any interference from any licensed service operating in the band you are using. As a Part 15 device, you must accept interference from these devices. Again there is action you can take, similar to interference from Part 15 devices. However, as with the issue in the previous paragraph, do not expect any help from the FCC.

DFS – TPC Requirements

Parameter	Value
DFS Detection Threshold	-64dBm for WAS devices with e.i.r.p. between 200mE and 1 W -62dBm for WAS with e.i.r.p. of less than 200mW
Channel Availability Check Time	60 sec prior to channel use
Non Occupancy Period	30 min
Channel Move Time	10 sec
Automatic Transmit Power Control (5470- 5725 MHz)	At least 3dB on average output power of device

One needs to remember that Part 15 devices cannot cause interference to any other services including amateur services. The FCC generally gives the Part 15 operator some time to resolve the issue, in most cases by selecting another frequency, reorienting antennas or lowering power to solve the situation. However, failure to act or if the problem is not solved could result in the Part 15 system being required to be off the air until the problem is resolved.

field complaint from VSAT operators who were being disrupted by radar detectors.

The FCC has also requested on occasion that a WISP operating Part 15 WLAN equipment stop operations until a specific interference problem has been fixed.

FCC Enforcement

Despite what some people think, the FCC has been in the enforcement business. The lab is leading the effort on this, with an increased number of samples as well as continuing to handle complaints.



Recently the FCC Enforcement Bureau went after a chain of stores selling uncertified radios that could be configured to be used in the CB bands. In first Report and Order 01-278, they required that radar detectors be certified (they were exempt as a receiver operating over 960MHz). This was to avoid a serious

Conclusion


So what is the real issue? First, despite being partly unlicensed the FCC has been addressing interference issues as they are reported. Its public records support the conclusion that Part 15 devices are not out there interfering with the world with no type of enforcement as some have us to believe.

They also fail to take into account the people in the field from the Part 15 manufacturers who address such issues as they arise. Is the situation perfect? Far from it, but it is not as chaotic as some people think or state in their public filings. Fear is a powerful motivator.

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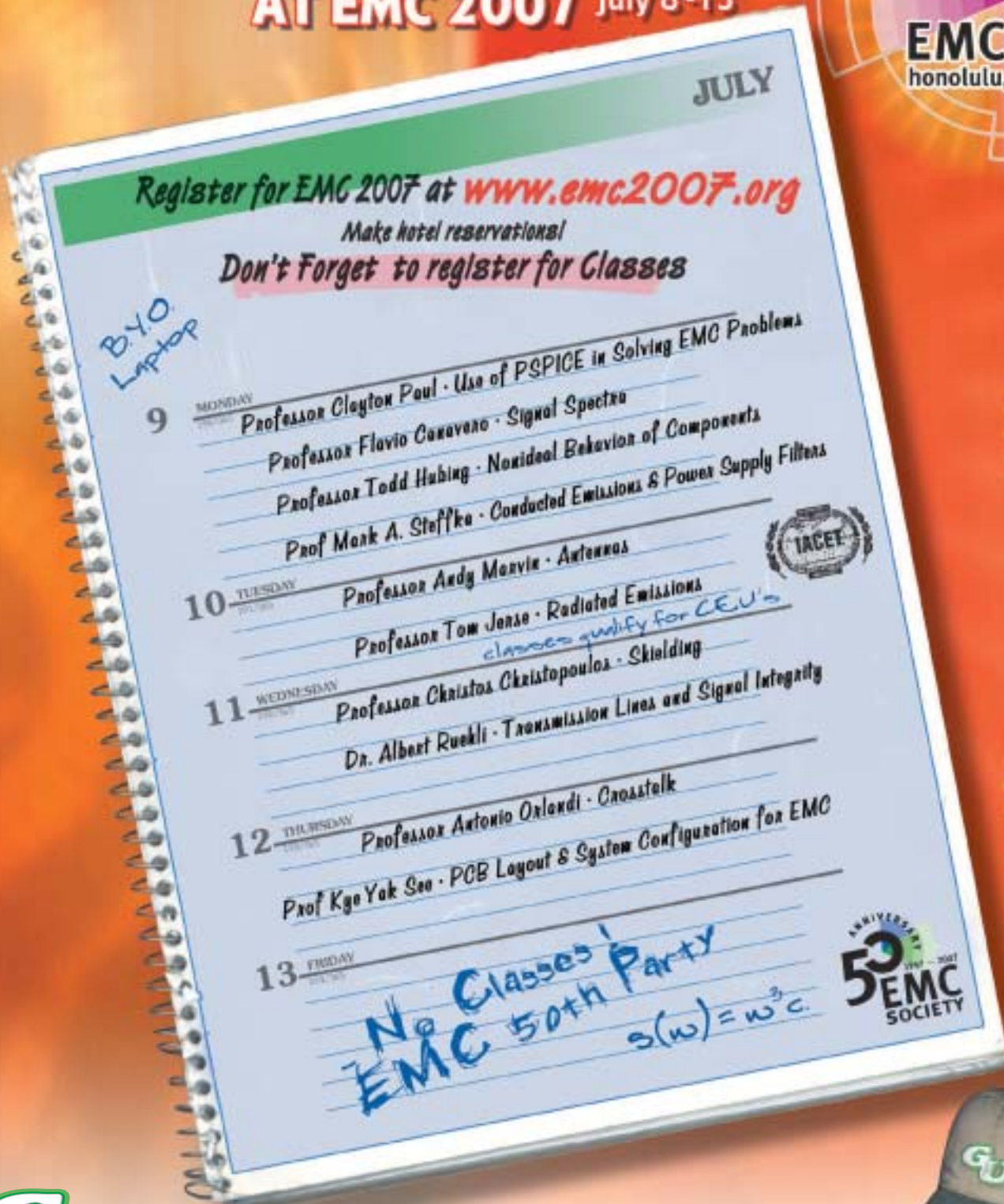
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Changing of the Guard at NARTE HQ

With the departure of Fatima Martins, our exam coordinator, we have added a new member to our staff. Kristen Hall is now working at NARTE HQ as our administrative assistant and Stephanie Fraser has taken over the exam program coordinator duties. Kristen comes to us



with many years experience as an administrative assistant who has worked as support for real estate companies and the FDIC. If you call in and hear an unfamiliar voice, it is probably her, so be sure to welcome her to the NARTE Staff!!

Focus Groups Review Delineation of Wireless Communications Engineering Technology Practice

By Rolf Frantz

This article is reprinted courtesy of the IEEE ComSoc from the April issue of IEEE Communications Magazine and is IEEE ComSoc work in progress.

As reported last month, the Practice Analysis Task Force (PATF) generated a draft delineation of the domains (areas of responsibility), tasks, and knowledge that might be expected of a practitioner of Wireless Communications Engineering Technology (WCET). That delineation is being reviewed and refined at Focus Group meetings at 3GSM in Barcelona, WCNC in Hong Kong, CTIA WIRELESS 2007 in Orlando, and IEEE Region meetings in Regions 8, 9, and 10. Very constructive Focus Groups have already been held in Barcelona and Lima (Region 9).

Dr. Sandra Greenberg from Professional Examination Service, not-for-profit experts in certification development who are guiding ComSoc in creating the WCET certification program, facilitated the Barcelona sessions. According to Dr. Greenberg, these were among the most active Focus Groups she has led. Participants were asked to give three hours of their time for the discussions, but several experts were still discussing the delineation after over four hours of uninterrupted, energetic conversation. Former ComSoc President Celia Desmond (third from right in photo) led the Lima sessions, which were



attended by local experts from industry, government, and academia. Both groups were keen to help and put forward a number of ideas.

As might be expected, these subject matter experts were not hesitant to offer their best thoughts! All groups placed significant emphasis on the categories of knowledge that might be expected of a practitioner with three to five years of experience in wireless communications engineering technology. They clearly want these practitioners to have broad knowledge of all aspects of the technology as well as a depth of knowledge in a subset of areas. They want practitioners to know why things are done rather than specifying how to do them in great detail. All groups also provided detailed feedback for the PATF to consider when it meets later this spring, including restructuring and re-ordering of the domains and



adding, modifying, or deleting tasks and knowledge. We thank the participants in these Focus Groups for their time, energy, and contributions.

As gratifying as this energy level is, however, the process does not end with this feedback. Two Focus Groups in Hong Kong and two in Orlando have been scheduled. We anticipate at least one Focus Group at the IEEE Region meetings in Asia and Europe. In late March the draft delineation of domains, tasks, and knowledge was being sent to more than 50 industry experts who have agreed to serve as Independent Reviewers. Their inputs will then be combined with the feedback from the focus groups, and summarized and provided to the PATF for consideration at its next meeting in May.

If you want to participate but haven't signed up for a Focus Group or as an Independent Reviewer, you can still help. This June, we will conduct an online review of a draft survey of practice, including the delineation, associated ratings scales, demographic questions, and other materials. To sign up to participate in this review, go to <http://www.comsoc.org/cert> and follow the link to the Pilot Survey. Again, thanks to all who have participated to date and to all who have volunteered to help in the future.

Focus Group Participants, 3GSM – Barcelona

Jordi Clavaguera, Telefonica
 Francisco Falcone, Telefonica Moviles España
 Alberto Ferrando, Skidata
 Jose Carlos Flores, Cableuropa
 Giulio Galante, Instituto Superiore
 Mario Boella
 Jaime Garcia Zaragoza, Cisco Systems
 Ivan Gimenez, Ericsson España
 Oscar Gonzales Soto, Consultant (ITU-BD)
 Klaus-D. Kohrt, Siemens Networks
 Jose Lopez-Salcedo, Universitat Autònoma de Barcelona
 Robert Rivoir, Wiz4Com Technologies
 Tom Rowbotham, Vesbridge Partners
 Bjoern Rupp, GSMK CryptoPhone
 Martin Sauter, Nortel
 Maria Angeles Vazquez Castro, Universitat Autònoma

de Barcelona

Focus Group Participants, Region 9 – LIMA

Fernando Agulo, Nextel
 Carlos Barreda, Telefonica
 Reynaldo Burgoa, Claro
 Enrique Calderon, Telefonica
 Javier Carpio, Cisco Academy
 Jaime Diban, Motorola
 Raul Garcia, Osiptel
 Pedro Icochea, Nextel
 Luis Montes, Telefonica
 Pablo Omonte, IEEE Host/Organizer
 Raphael Palomino, Cisco Academy
 Yvanna Quijandra, Cisco Academy
 Luis Roca, Caltec
 Juan David Rodriguez, Claro
 Juan Jose Trigo, Claro
 Luis Valdez, Nextel

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 Mr. Jerry Betts 10/17/2006
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Mr. Martell A. Whitehead 4/19/2006
Mr. Derrick L. Williams 4/19/2006
Ms. Ola Williams 12/13/2006
Ms. Esther Zoker 4/19/2006

NARTE Certified Wireless Systems Installer-Technician

Mr. Ryan W. Hanson 3/16/2006

NARTE Non-Certified Members

Mr. Ryan G. Atkinson 11/1/2006
Mr. Randal D. Bailey 4/19/2006
Mr. Robert Baitinger 5/5/2006
Mr. Andrew Blankenship 11/15/2006
Mr. Robert A. Brown 11/15/2006
Ms. Satara O. Campbell 11/15/2006
Ms. Monica C. Capel 10/17/2006
Ms. Chanel T. Craighead 10/17/2006
Luis X. Cuadrado 12/13/2006
Mr. Septimus W. George 11/15/2006
Mr. Andrew D. Graham 11/15/2006
Ms. VeCoya A. Greene 9/6/2006
Ms. Vernnessa E. Greenlee 4/19/2006
Avery M. Hartgrove 12/13/2006
Mr. Maurice A. Haywood 10/17/2006
Mr. Brian Johnson 4/19/2006
Mr. Eric V. Johnson 4/19/2006
Ms. Angela R. Lemons 10/17/2006
Ms. LaShanda D. Lesane 4/19/2006
Mr. Kenyorder Lewis 12/13/2006
Jacque L. Lopez 11/1/2006
Miss Brigett Lothrop 9/6/2006
Mr. Clifford B. Martin 11/1/2006
Mr. Jefferson L. McDaniel 11/15/2006
Mr. Gregory M. McGill 11/15/2006
Ms. Tiffany C. Moore 11/1/2006
Mr. Ronald W. Mullins 5/5/2006
Byron K. Murrain II 12/13/2006
Suganthi Seran 4/19/2006
Ms. Mia A. Simmons 10/17/2006
Mr. Walter C. Slusher 4/19/2006

NARTE Administrative Page

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DeKalb, Illinois

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2nd VICE PRESIDENT (2007)
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KD9OG

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NARTE Directors



Lawrence V. Behr
(2007)



Russ Carstensen
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David A. Case
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Kimball Williams
(2007)