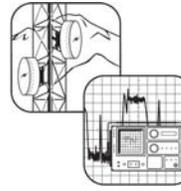


# Talk Group



ADCOMM  
ENGINEERING COMPANY

*Specialists in Public Safety Communications Since 1979*

3929 184th Place SE  
Bothell, WA 98012-8827  
Voice: 425-821-8827 Fax: 425-488-3952  
Web Site: [www.adcommeng.com](http://www.adcommeng.com)

Bridging the Gap Between Operations and Technology®

Vol. 7 No. 1

©June 2008

## ADCOMM Supports Consolidation of Dispatch Centers

—Mark Nelson

Recently, NORCOM, a new regional emergency communications center serving north and east King County, Washington, was formed following a comprehensive analysis by ADCOMM and Karen Reed Consulting. ADCOMM and Reed collaborated on a project to develop a business and services plan for consolidation of emergency communications centers.

The business and services was the second phase of a project that started in 2004 when several public safety service providers in north King County commissioned a needs assessment for a regional public safety communications agency.

Based on the findings from the needs assessment, 14 police, fire, and EMS agencies decided in 2005 to participate in a study that finished in 2006 and concluded that there were advantages to moving away from emergency communications service based on agencies contracting with a service provider to an organization where the members each have a voice and a vote and can directly control the service levels and offering provided.

The project included exploring alternative forms of governance, developing costs of numerous service offerings, identifying technologies required to support the service offerings, and configuring staffing plans to support various levels of service.

A major conclusion from the study is recognition of the value to regional law enforcement of a single computer-aided dispatch, field reporting, and records management system to allow sharing of information and increased time that officers spend in the field. Another benefit is quicker handling of 9-1-1 calls by a single call receiver who is trained to obtain fire, emergency medical, and law enforcement information, without needing to transfer callers, depending on the type of service required.

During the project, participants developed a cooperative approach to working with each other, increased levels of trust, and established consensus on the operating values and principles of the organization they eventually formed. While developing the business and services plan, the participants realized that a key question they were faced with was, *What price for a voice and vote on the operation and governance of public safety dispatch?*

In late 2007 NORCOM was formed as a not-for-profit corporation, hired its executive director in early 2008, and intends to begin operation July 1, 2009, with the consolidation of the communications centers managed by the cities of Bellevue and Kirkland.

The complete business and services plan, the Interlocal Agreement, articles of incorporation and by-laws forming NORCOM, and other documents, are available at the City of Kirkland's web site, <http://www.ci.kirkland.wa.us/depart/CMO/NORCOM.htm>.

# Thinking About ...

## NIER, RF Safety, and You

—Tom Manley

...yes, YOU. If you manage a radio site, work at a site on the ground or on a tower, or visit a site, you need to know about the RF environment for your own and everyone else's safety. This is especially true as more and varied communication services are deployed; some that may be unexpected such as relatively high power, 100 percent duty cycle transmitters providing mobile phone television. Antennas are fairly common now on city rooftops and sometimes are not obvious. If certain measures have not been taken to inform people in an area, the zoning demanded of some jurisdictions to camouflage antennas may allow people to be exposed to potentially hazardous non-ionizing electromagnetic radiation (NIER). Some AM and FM broadcast transmitters are in close proximity to residential areas. With foreknowledge, proper measures may be taken to protect the general public and workers around these facilities.

ADCOMM has the tools to provide on-site measurement with instruments like the Narda NBM 550 Broadband Field Meter and the engineering expertise to evaluate a site for RF safety. We can advise on the appropriate measures needed to establish a safe site for the public and your workers.

First, some background information: way back in 1969, the National Environmental Policy Act caused the FCC to develop rules addressing issues of safety for exposure to radio frequency radiation (RFR). Long before that, RFR was known to have biological effects that were more than just the occasional RF burn on a careless technician's fingers; the advent of radar in World War II made tissue heating more obvious and

even the perception of clicking sounds by operators had the portent of neurological effects. In the succeeding decades, research focused primarily on the biological effects of tissue heating, what levels caused physical or behavioral responses, how the body dissipates heat and, ultimately, exposure levels deemed safe for certain situations. These efforts resulted in documents that became the heart of the FCC rules in this matter, ANSI/IEEE Standard C95.1-1992 and NCRP<sup>1</sup> Report No. 86. The FCC embodied these results in parts of CFR 47: section §1.1310 for fixed facilities, §2.1091 for mobile installations, and §2.1093 for portable operations. Our primary focus here is fixed installations. Further, the FCC defined procedures and formulas for calculating RF power densities in "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65, August 1997."<sup>2</sup> These rules are still operative although the FCC began a review in 2003, which is ongoing.<sup>3</sup> OSHA also has rules that can apply as well although they are typically much less stringent than the FCC.<sup>4</sup>

The FCC's exposure limits, while not identical to the referenced standards, are based on the concepts used therein. The exposure limits are categorized for "uncontrolled" and "controlled" environments: "uncontrolled" being areas the general public inhabits and where people are not necessarily aware of the RF situation and "controlled" being areas where access is limited and persons are aware of the environment and how to behave safely there.

The first concept used to establish the FCC rules is maximum permissible exposure (MPE), which is the frequency dependent free-space power density and/or field strength limit and is based on whole-body, averaged plane wave equivalent exposure conditions. The MPE power density limits are expressed in  $\text{mW}/\text{cm}^2$  and are fre-

quency dependent due primarily to the relationship between body size and wavelength. The second concept is specific absorption rate (SAR), which is based on 1 gram averaged energy absorption limits measured in tissue equivalent media. The tissue models and dielectric properties must be appropriate for the exposure conditions tested and for the partial-body or localized near-field exposure conditions. The analysis of SAR includes the ability of the human body to dissipate heat mostly through blood circulation and results in the time- and spatial-averaging criteria that are found in the rules for the controlled environment situation. Time and space averaging are not used for the "uncontrolled" areas because the occupants are exactly that, uncontrolled. Both concepts are also applicable to mobile or portable transmitters.

Note that, as of September 2000, there is **no exemption for RF exposure compliance**, even if a transmitter is categorically excluded from routine evaluation for demonstrating compliance. The transmitter must still be shown to comply with the rules. A good way to deal with the provisions of the FCC rules and others like OSHA is to document and put in place an RF safety plan. A documented safety plan has a number of elements: it is written down (or it does not exist at all!), it shows intent to be safe, it provides education to workers on site, it helps identify and explain specific hazard areas (signage and physical barriers), it defines work practices such as transmitter control during access or the use of personal monitors, it provides for safety updates and reviews as conditions change, it defines responsibilities, and more. Now, before the specter of an onerous, expensive regulatory exercise overwhelms you, understand that these are guidelines to consider in developing such a document

and not absolutes. Some sites will be quite straightforward and simple like, arguably, many commercial wireless installations and some public safety sites. Others can be more complex such as crowded, co-located sites and high-power broadcast sites. Look at it as a tool to help you think through the particular needs of your site.

In future Talkgroup newsletters, we hope to describe some of the techniques used for evaluation and the measures that can be used to provide an RF-safe site.

<sup>1</sup> National Council on Radiation Protection

<sup>2</sup> See FCC Proceedings ET Docket 93-62; FCC 96-326: Report and Order, FCC 96-489: 1st MO&O, FCC 97-303: 2 nd MO&O.

<sup>3</sup> See FCC Proceedings ET Docket 03-137; FCC 03-132 NPRM.

<sup>4</sup> 29 CFR 1910 Subpart G, Subpart J, Subpart R; 29 CFR 1926 Subpart D et al.

## Professional Project Management

—Dave Magnenat, PMP

Most projects fail. Some studies show more than 60 percent of technology projects either finish late, end up over budget, fail to meet the intended result, or deliver a solution that does not meet the needs of the customer. The bulk of technology projects occur in the private sector, of course, and failure there may affect the profit margin of the company. In the life-and-death world of public safety communications, however, failure can be much more serious.

One factor influencing the success of a project is the presence of proven processes and structure around the work of the project. By paying attention to the way various pieces of a project interact, tracking and projecting work schedules and budgets, and taking a structured approach to communicating with stakeholders, the success rate of a project increases.

That's where professional project management comes in. A Project Manager (PM) is a person who initiates, monitors, controls, and communicates the processes and structures of a project. The Project Manager may or may not contribute directly to the creation of the project's final product; like most managers, the PM's purpose is to enable those with the expertise to do their work in the best way possible. PMs coordinate the elements that comprise the final product, communicate with all the stakeholders, monitor and control the project's budget and processes, and carry the knowledge of lessons learned from one project to the next.

The Project Management Institute (PMI) is identified by ANSI as the world standards organization for project management methodology. The PMI's standard, known as the Project Management Body of Knowledge, defines effective practices for project management, and the PMI certifies practitioners in the selection and application of these standards. The Project Management Professional (PMP) certification is globally recognized as the industry standard for excellence and knowledge in project management.

To become a PMP, the practitioner must document extensive experience in project management: 4,500 hours if the candidate has a bachelor's degree and 7,500 hours with a high school diploma. The candidate must also have 35 recent contact hours of project management education, and submit documentation for all of the qualifications.

After the prerequisites are met, the candidate must pass an extensive, timed written examination covering not only the PMI standards but other effective practices as well. Finally, the successful candidate must agree to abide by a professional Code of Ethics that includes a professional actions review committee. Once certified as a PMP, the practitioner is required to maintain currency by documenting 60 hours of continuing education per 3-year renewal period.

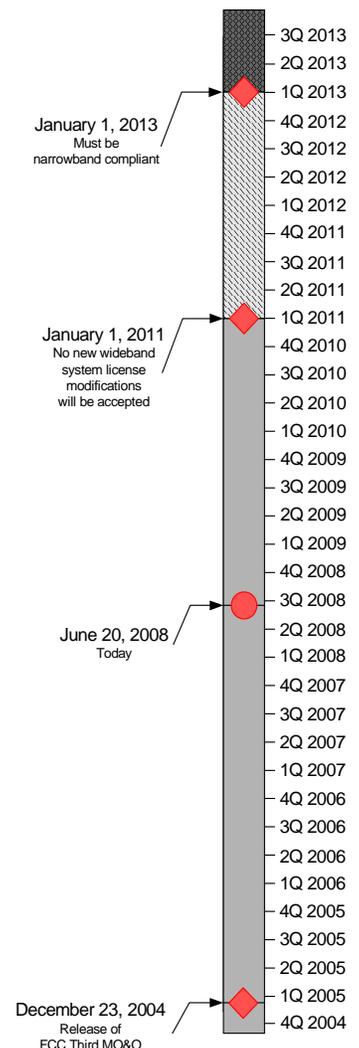
So what does a PMP bring to your project? In addition to the "book knowledge" proven by the certification exam, the PMP has qualified experience in real life project planning and execution. He or she is current in the quickly changing field of project management, and has access to a large network of other PMPs for support and expertise. With a PMP-certified Project Manager, you know that your project is in good hands.

## Narrowbanding

### Concerned about narrowbanding? Need help with your narrowbanding tasks?

The ADCOMM team is here to help.

Remember, there are only 54 months before the FCC's deadline to become narrowband compliant.



## THE LAST BYTE

How many times each day do you do something nice for someone else? Your family doesn't count. You should automatically be doing nice things for them. I am talking about strangers, co-workers, other drivers, etc. If each of us yielded a bit on the freeway or in heavy traffic, if we held the door open for someone (man or woman, child or teenager) even though it meant waiting a couple of seconds, or if we smiled even when we didn't feel like it, the world would be a happier place and we would be happier too.

—Joe Blaschka, Jr., P.E.

## Meet ADCOMM's Newest Staff Member

**Peter Abraham** is the newest member of the ADCOMM team. Peter brings over 13 years of experience in RF systems engineering and has a broad background in RF systems and propagation consulting. Peter spent over a decade at Nokia Networks in various offices throughout the west.

Peter resides in Redmond, Washington, and is currently pursuing a masters degree in Theology. With the little spare time he has, Peter enjoys astronomy, snowboarding, operating his ham radio, and bicycle riding.

## Mailing List or Email?

Is your address correct? Do you know someone who may be interested in receiving this newsletter? Please let us know! Send additions and corrections to Susan Seefeld at [s.seefeld@adcomm911.com](mailto:s.seefeld@adcomm911.com).

## Would you rather receive this newsletter electronically?

We can now email you a PDF of our newsletter. Please contact Susan with your request.

---

**Check out our website:  
[www.adcommeng.com](http://www.adcommeng.com)**

---