



the SIGNAL

SBE's RF Safety Training Course: It really IS necessary

BY **Chris Imlay, CBT**

SBE General Counsel

I really hate having my car serviced at car dealerships. I don't do it unless I absolutely have to, or if the car is under warranty and I am not going to be paying for what they do. Perhaps some of my dislike for the dealers is that the mechanics there know how to diagnose problems with the modern engine computers and I can't do it. I still have my trusty dwell meter and timing light, but I no longer use them, or my feeler gauges for gapping breaker points. I used to be able to do all that stuff, and I loved it. It was just as much fun as tuning a Yagi antenna so that it resonates precisely where I want it to.

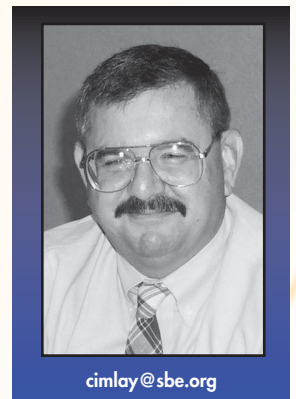
But another reason why I don't like the some dealerships' service departments is that they are always trying to sell me something besides what I took the car there for in the first place. No, I don't want to have some professional fuel injector cleaning. No, the front brake pads and rotors are not yet in need of replacement, and my transmission does not yet need flushing. I don't need a lot of stuff they tell me I need. I know enough about even modern cars to know what I have to have done and what I don't. They like to use scare tactics to get me to agree to the unnecessary work. They infer that if I don't do it, I will be left on the road, or worse. Maybe some of that work ought to be done, but I didn't like the marketing tactics.

I have always suspected that something like that was going on with RF safety training. Some of the many companies that I saw that conducted seminars (who are darn good at RF safety training, by the way) were using what looked

to me like "scare tactics" to get me to sign up. I have seen references in their literature to FCC enforcement proceedings and large monetary forfeitures based on lack of RF safety training. I had seen forfeitures based

on excessive measured MPE levels at certain sites, but I had not seen any issued to anyone because they lacked RF safety training and accessed transmitter sites. Maybe I missed them, or perhaps those kinds of forfeitures will be forthcoming from FCC, but I thought the risk of FCC forfeitures was overstated. People shouldn't be browbeaten to do something, no matter how good or important it is to do it, by scare tactics.

A bit over a year ago, I wrote in this column about RF safety training, and how my friend Ray Benedict dragged me away from my client work and time sheets to an AFCCE seminar on RF safety to prove to me that broadcast engineers aren't generally doing what they need to do in the way of RF safety training. It turned out that Ray was right; it is mandatory. And I learned that from the best of authorities: Dr. Robert Cleveland, Ph.D, who until his retirement from FCC recently, was the FCC's leading expert on RF safety. Dr. Cleveland gave a great seminar on the subject and suggested as a "must-read" the IEEE C95.7-2005 Recommended Practices document



on the subject of RF safety.

Dr. Cleveland, who is one of the foremost experts on RF Safety anywhere, said that RF exposure training is now and has been mandatory, and that the failure to have it, for people who access transmitter sites, turns what otherwise would be a “controlled” RF environment into an “uncontrolled” environment. That got SBE moving toward setting up some high-quality RF Safety training. Elsewhere in this issue of the Signal you will find John Poray’s article containing all the details about this new program. It is worth a second look here, though, at why you ought to consider this new SBE program very soon. Here’s the deal:

FCC regulations, at Section 1.1310, provide for two sets of Maximum Permitted Exposure (MPE) limits. You recall that the MPE limits are determined in relation to the human resonance region, which is of most concern in the 30 to 300 MHz range. The first MPE limit is for occupational exposure levels, in so-called “controlled” environments. The MPE levels are higher in these environments, because members of the “general public” (i.e. people who are unaware of the safety issues) are not allowed access to them. The other environment is the “uncontrolled” environment, which includes (but is not limited to) areas that are accessible by the general public. The MPE in an uncontrolled environment is 20 percent of the MPE for a controlled environment.

A controlled environment is, in effect, an area in which those who access it are covered by an RF safety program. In such an environment, all of the persons accessing the area are “qualified workers.” A qualified worker is a person who has completed RF safety training. If people enter a controlled environment who have not had RF safety training, the environment becomes an uncontrolled environment, and is subject to the much lower MPE levels.

The FCC footnote to the table of MPE levels in Section 1.1310 of the Commission’s rules says that “Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided that those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.” Therefore, qualified workers, those who are able to enter controlled environments where the more liberal RF levels are permitted, must be “fully aware” of the potential for exposure and are able to “exercise control” over that exposure. One cannot possibly be “fully aware” of the RF exposure potential or able to “exercise control” over that exposure if they have not been provided with RF safety training.

By contrast, the same FCC rule says that “General population/uncontrolled exposures apply in situations in which the general public may be exposed or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.”

How much safety training is necessary in order for a person accessing a transmitter site to be considered a “qualified worker?” The terms “fully aware” and the ability to “exercise control” are not crystal clear, but they offer some guidance. A qualified worker would obviously have received some instruction in RF safety and can as the result of that training, use equipment such as RF personal monitors and protective RF suits to control the time and amount of RF exposure and protect himself or herself.

Professional people such as electricians, roofers, plumbers, and the

like who access transmitter sites to do their work very occasionally are, unless trained, not considered “fully aware” or able to “exercise control” and therefore are not considered qualified workers. Their entry into a controlled environment converts that environment (temporarily) into an uncontrolled environment.

Richard Strickland, who conducts the SBE RF Safety seminars, is a professional person who does not use scare tactics in his presentations. He is eminently qualified and we are looking forward to working with him to provide a means for SBE members (and in fact anyone who is professionally required to enter controlled RF environments) to easily, cheaply and confidently comply with the obligations which already for RF safety training.

If you take the SBE RF Safety course, you will be able to say that you are “fully aware” and able to “exercise control” of the RF environment in which you work. So, don’t be scared into doing this. Do it because it is the right thing to do, and the responsible thing to do.

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