



March 15, 2010

Edwin D. Mantiplay
Office of Engineering & Technology
Federal Communications Commission
Room 7-A201
445 12th Street, SW
Washington, DC 20554

Subject: Smart Meter RF Emissions - Compliance Questions

Dear Ed,

In view of the rapid deployment of smart meters around the country, and the relative lack of public information on their RF emissions profiles, can you answer the following questions? Can you verify whether smart meters will be in compliance with FCC uncontrolled public access limits in the manner they are being installed and operated?

1) What evidence is there that Smart Meters (there are several types, including the AM14 series, and the CV-SOR collector meter) are in compliance with existing FCC regulations for uncontrolled public access? Has the FCC performed compliance reviews? If not, why not, and if so, has the FCC been able to certify that compliance is achievable under real-life use conditions including, but not limited to:

- In the case where there is one smart meter on the home (such as an AM14) but it acts as a relay for other neighboring meters.
- In the case where there are two smart meters (gas and electric) on the home located closely together.
- In the case where there is a "bank" of electric and gas meters, on a multi-family residential building such as on a condominium or apartment building wall.

The photo below shows a typical condominium building with multiple electric and gas meters on one wall (in this case, a bedroom and kitchen share a wall with the meters). Under a maximum RF emissions case, with multiple smart meters, please provide documentation of compliance in this manner of installation and operation.

- In the case where there is a collector meter on a home that serves the home, and 500 to 5000 other residential units in the area. Collector meters emit a maximum RF pulse of more than one and a half million microwatts/cm². A CV-SOR is one example of such a collector meter.

2) What about the RF emissions from the power transmitters? Power transmitters installed on appliances (perhaps 10-15 of them per home) each emit about 1000-2000 microwatts/cm² at 2". How can the FCC certify a system that has an unknown number of such transmitters per home,



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with no information on where they are placed? And, under what pre-existing conditions of RF exposure already present?

3) What about 'piggybacking' of other neighbors' meters through yours? How can piggybacking be reasonably estimated and added onto the above estimates? What is the cumulative RF emissions worst-case profile? Is this estimate in compliance? If so, please provide documentation.

4) On what basis can compliance for the family inside the residence be assured, when there is no verification of what other RF sources exist? How is the problem of cumulative RF exposure handled (wireless routers, wireless laptops, cell phones, PDAs, DECT or other active-base cordless phone systems, home security systems, baby monitors, contribution of AM, FM, television, nearby cell towers, etc).

How can these meters be deployed widely, when it is obvious there are many situations where the RF exposures will be extremely high and pervasive throughout living environments? These are not extreme cases, but common multi-family living situations across the country.

I am also concerned that these new smart meters will emit very high RF bursts in every home, day and night, including near people with metal implants (who require protection under Americans with Disabilities Act). There are more than 20 million people in the US who need special protection against such exposures that may endanger them. High peak power bursts of RF may disable electronics in some critical care and medical implants. We already have reports of wireless devices disabling deep brain stimulators in Parkinson's patients and there is published literature on malfunctions with critical care equipment.

The public wants FCC assurance that these new technologies are not endangering public health, and such compliance work should come BEFORE and not after widespread deployment. It should not be up to the individual who believes they are being harmed to go through the long process to complain to the FCC and ask for compliance testing. Rather, the FCC should be proactively requiring each utility to pre-certify compliance before installing these new smart meters. Further there should be limits on what kind of "off-label" use is made of them. Some telecom companies are reported to be planning to buy unused time from utilities and use smart meter wireless capabilities for advertising and cell phone transmissions that will potentially invalidate compliance testing by increasing RF transmissions in an uncontrolled fashion.

Thank you for your support - these questions are important to the public, and should be a part of the public education and discussion on the merits of new wireless technologies in general.

Regards,

Cindy Sage, Sage Associates



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*Correspondence from Southern California Edison Company
(Equivalent information is not available on PG&E smart meters)

From: Glenn.Sias@sce.com
Subject: **Re: SmartConnect Meeting Materials**
Date: March 9, 2010 5:34:55 PM PST
To: sage@silcom.com

In response to your question about the material presented last month, the Power Density (mW/cm^2) calculations were calculated using the maximum Radio Transmit Peak Power and not the average power. The maximum Transmit Peak Power in milliWatts (mW) for each of the radios during the duty cycles are as follows:

- RFLAN 900Mhz Radio Transmit Peak Power: 155.60mW
- ZigBee 2.4GHz Radio Transmit Peak Power: 74.30 mW
- Cellular 824MHz Radio Transmit Peak Power: 1513.56 mW

Regarding your questions about which meters will be deployed in Santa Barbara. SCE plans to install both meter types (AMI4 & CVSOR-A) in Santa Barbara. The AMI4 is the typical meter and the CVSOR-A is the data collector meter. We are designing the SmartConnect network with a 500:1 ratio, which means 500 AMI4 meters for every CVSOR-A data collector meter.