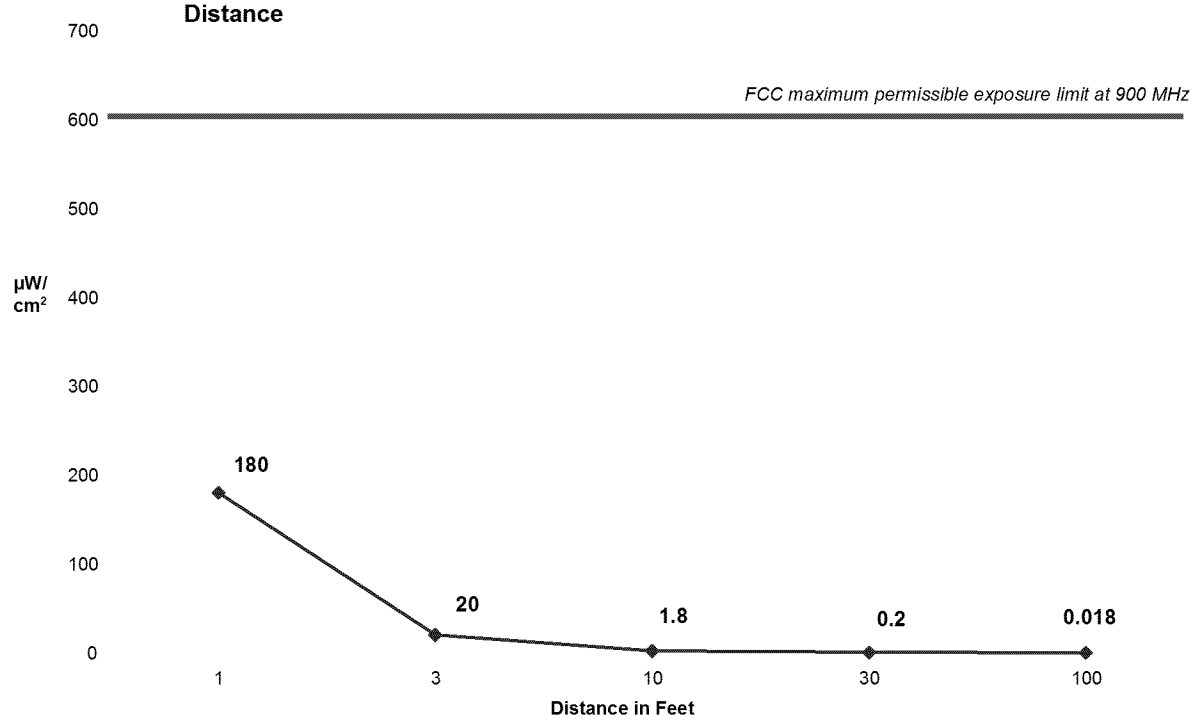
Figure 6R: Power Density from a Sample Smart Meter Versus Distance



Power density from a sample smart meter versus distance; 1-Watt emitter at 50% duty cycle. Typical smart meter AMR transmitter power density declines rapidly with distance. The rapid drop of power density with distance (inverse-square law) is similar for various duty cycles and different sets of source data.

"The FCC guidelines measure exposure to RF emissions in two ways. Specific absorption rate (SAR) measures the rate of energy absorption and is measured in units of watts-per-kilogram of body weight (W/kg). . . . Limits on SAR provide the basis for another measurement of exposure, maximum permissible exposure (MPE). MPE limits average exposure over a given time period (usually 30 minutes for general exposure) from a device and is often used for exposure to stationary devices and where human exposure is likely to occur at a distance of more than 20 cm. It is measured in micro (10^6) watts-per-square-centimeter ($\mu W/cm^2$), and accounts for the fact that the human body absorbs energy more efficiently at some radiofrequencies than others. . . . In the frequency bands where smart meters operate, including PG&E's, namely the 902-928 MHZ band and 2.4 GHz range, the human body absorbs energy less efficiently, and the MPE limits are less restrictive. . . . At 902 MHz, appropriate for operation of the AMR transmitter of the smart meter, the FCC limit is 601 $\mu W/cm^2$." (Report at pp.17-18.)

Question 2: What did the CCST Report say about exposure levels from a bank of meters and from behind the wall of a single meter?

Answer 2: The CCST Report contains a section entitled "What About Exposure Levels from a Bank of Meters and from Just Behind the Wall of a Single Meter?" (Report at p.24.) It answered these questions by citing the Electric Power Research Institute's (EPRI) February 2011 assessment of the Itron smart meters in use in Southern California Edison's and San Diego Gas & Electric Company's service territories:

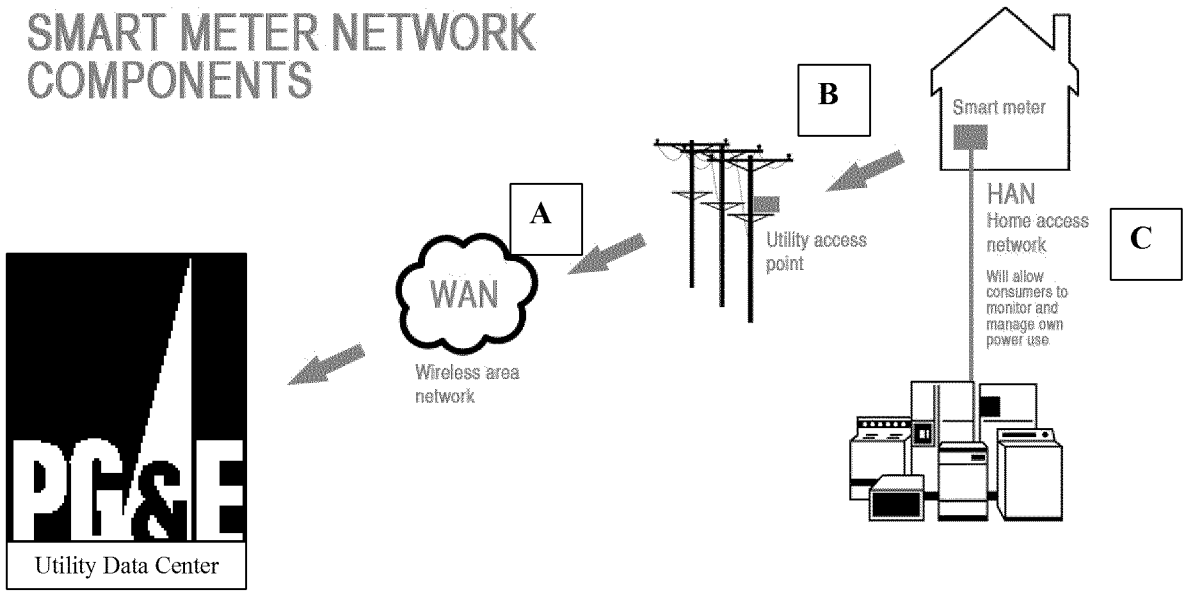
"[EPRI] field tested exposure levels from a bank of 10 meters of 250 mW [i.e., milliwatts] power level at one foot distance in order to simulate a bank of smart meters located at a multifamily building, such as an apartment house. The exposure level was equivalent to 8% of the FCC standard. [¶] In the same study EPRI measured exposure of one meter from eight inches *behind* the meter panel box in order to simulate proximity on the opposite site of the meter wall. At 5% duty cycle it yielded an exposure of only 0.03% of the FCC standard. Even at 100% duty cycle (i.e., always transmitting), exposure at eight inches behind the meter was 0.6% of the FCC limit." (Report at p.24)[2]

[2] There are two noteworthy differences between the types of meters to which CCST referred in responding to Questions 1 and 2 above. In its answer to Question 1, CCST referenced a 1-Watt power source with a 50% duty cycle (defined as the percentage of time that an RF device is in operation [Report at p.46].). In contrast, the meter that CCST referenced in its answer to Question 2 has a ¼-Watt emitter operating with a 5% duty cycle (i.e., it operates at a quarter of the power for just one-tenth of the time).

Question 3: What system architecture does PG&E utilize for its electric SmartMeter™ technology?

Answer 3: CCST describes PG&E's electric system architecture in a section entitled "What are Smart Meters?" (Report at p.10.) It states as follows:

"The smart meters used by PG&E are made by General Electric and Landis + Gyr and use a wireless communications technology from Silver Spring Networks. Each of these PG&E meters has two transmitters to provide two different communications of data from these meters. The first provides for the "automatic meter reading" (AMR) function of the meter . . . and sends this data to an access point, where it is collected along with data from many other customers and transmitted to PG&E using a wireless area network (WAN) (similar to the way cell phone communication works)." (Report at pp.10-11.)



Source: This diagram derives a similar diagram at page 11 of CCST's Report.

PG&E utilizes different radio network frequencies to convey the different amounts of data that it collects (e.g., a single home's data compared to a full neighborhood's data) the various distances that the data must travel (e.g., from a measure of feet at the HAN-level to a measure of miles at the WAN-level). These are reflected by letters A, B, and C above, as follows:

A. Public Service Telephone Network cellular wireless packet data service provided by Verizon and AT&T.

B. PG&E SmartMeter™ electric mesh network (operating in the 902 – 928 MHz band).

C. PG&E SmartMeter™ electric home area network (will operate in the 2.4 GHz band once in operation).