From: Berg, Michael [mailto:Michael.Berg@ICT.Cetecom.de]
Sent: Wednesday, May 08, 2002 9:54 AM
To: Bo Eriksson
Subject: AW: Further on substitution method for U952T

Dear Bo,
because our test site is listed and accredited by the FCC, so they will accept this measurements !
In the future, we will wrigth our test reports with the required tables (substitution method9, so that will give no problems .
The substitution methode means, if we detect a spurs , we have to replace the EUT with a calibrated Dipole and a RF generator .
the output power of the generator will be increased until you have the same level at the analyzer.then you can read the level from the generatot and calculate with Antenna gain and cable loss the radiated power from the EUT.
Because dBµV/m is also a power value, so you can calculate also directly the radiated power, if you have the measuring distance.

There is an example from a test report with measurements discribtion :
The final open field emission test procedure is as follows:
a) The test item was placed on a 0. 8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
b) The antenna output was terminated in a 50 ohm load.
c) A double ridged waveguide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and I MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded. The equivalent power into a dipole antenna was calculated from the field intensity levels measured at 3 meters using the equation shown below:
Pg = E2 4pd2 / 120p = E2 d2 /30
where : P = power in watts
g = arithmetic gain of transmitting antenna over isotropic radiator.
E = maximum field strength in volts/meter
d = measurement distance in meter
Using a dipole gain of 1.67 or 2.2 dB and a test distance of 3 meters, this equation reduces to:
P(dBm) = E(dBuV/m) - 97.2dB

I hope I could halp you.
Best regards
Michael