

From: Mario de Aranzeta  
Engineer  
Timco Engineering Inc.

To: Steve Dayhoff  
FCC Equipment Authorization Branch

Re: FCC ID: AMWUP758

Applicant: Uniden America Corporation

Correspondence Reference Number: 30354  
731 Confirmation Number: EA244412

Subject: Request for additional information

1. Please determine the actual antenna gains of the handset and base units, and calculate the conducted powers based on the following formula from KDB Publication No. 558074 "Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)" Alternative procedures:

$$P = (E \cdot d)^2 / 30 \cdot G$$

Where G= gain of handset and base antennas over an isotropic.

Steve, The manufacturer states the antenna gains are +4 dBi. So using the formula we get for the handset (peak):

$$\begin{aligned}
 & \text{dBuV} := 120.74 & G &:= 4 & \text{in dBi} \\
 & \text{efs} := 10^{\frac{\text{dBuV}}{20}} & D &:= 3 & \text{Distance in meters} \\
 & \text{efs} = 1.089 \times 10^6 \\
 & \text{efsmV} := \text{efs} \cdot .001 & \text{gn} &:= 10^{\frac{G}{10}} & \text{gain numeric} \\
 & \text{efsmV} = 1.089 \times 10^3 & \text{gn} &= 2.512 \\
 & P_o := \frac{(D \cdot \text{efsmV})^2}{(30 \cdot \text{gn})} \\
 & P_o = 1.416 \times 10^5 \\
 & P_oW := P_o \cdot .000001 & P_{omW} &:= P_o \cdot .001 \\
 & P_oW = 0.142 & \text{Watts} & & P_{omW} = 141.619 & \text{mWatts}
 \end{aligned}$$

For the base (peak) we get:

$\text{dBuV} := 118.99$	$G := 4 \quad \text{in dBi}$
$\text{efs} := 10^{\frac{\text{dBuV}}{20}}$	$D := 3 \quad \text{Distance in meters}$
$\text{efs} = 8.902 \times 10^5$	
$\text{efsmV} := \text{efs} \cdot .001$	$\text{gn} := 10^{\frac{G}{10}} \quad \text{gain numeric}$
$\text{efsmV} = 890.225$	$\text{gn} = 2.512$
$\text{Po} := \frac{(D \cdot \text{efsmV})^2}{(30 \cdot \text{gn})}$	
$\text{Po} = 9.465 \times 10^4$	
$\text{PoW} := \text{Po} \cdot .000001$	$\text{PomW} := \text{Po} \cdot .001$
$\text{PoW} = 0.095 \quad \text{Watts}$	$\text{PomW} = 94.65 \quad \text{mWatts}$

2. SAR report shows 152mW radiated power, but EMC report has 360mW. Explain, or revise for consistency.

Please note in Celltech's report that the 152.05 mW is source based time averaged. The peak powers are listed on page 7 (bottom) of their report in the "Free-Space Power Measurements" table. The field strength values obtained by Celltech and us compare as follows:

Frequency	Celltech	Timco
5828	123.07 dBuV/m	120.74 dBuV/m
	608 mW	360 mW

If we then use the free space equation and unity gain antennas to obtain power. We get 608 mW (peak) versus 360 mW (peak). A difference of 2.3 dB.

We are revising the TIMCO report to show source based time averaging power for consistency.