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# **RF EXPOSURE EVALUATION**

Maximum Permissive Exposure OET Bulletin 65 (Edition 97-01) RSS-102 Issue 2

3COM MODEL NO.: AP3850

FCC ID: 09C-AP3850 IC: 2299L-AP3850

## 1. Product Classification

This product is classified as a mobile device as defined in 47CFR 2.1091. Under normal usage a distance of at least 20cm is maintained between the radiating structures and the user, or nearby persons.

## 2. RF Exposure Limit

This product has been evaluated against the limits for General Population/Uncontrolled Exposure as defined in 47CFR 1.1310. These limits are shown below.

Frequency	Electric Field	Magnetic Field	Power Density	Average Time
Range	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(minutes)
(MHz)		-		
(A)Limits For Occupational / Control Exposures				
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6
(B)Limits For General Population / Uncontrolled Exposure				
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000	•••	•••	1.0	30

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

F = Frequency in MHz

## **3. Prediction of Power Density Levels**

The power density level has been predicted using equation (3) from OET Bulletin 65 (Edition 97-01). This formula over-predicts the power density in the near-field region, so this is used as a conservative or "worst-case" prediction.

$$S = \frac{P.G}{4\pi R^2}$$

where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

## 4. Product Evaluation

Worst case conducted power levels taken from the following test reports:

#### Sporton Lab report FR6O2612AA and FR6O2612AB, dated December 1, 2006.

This product includes two transmitters and can operate in 11b or 11g mode and 11a mode at the same time. Either transmitter can use internal or external antennas. The worst case from each transmission can be summed to calculate the total MPE.

Note: the 3CWE591 external antenna is also described as Maxrad Model MMO24580608 in the test reports.

#### 802.11b operation, distance 20cm

Antenna type	Gain (dBi) @ 2.4GHz	Conducted Power (dBm)	Power Density (mW/cm²)	Power Density Limit (mW/cm <sup>2</sup> )
Internal	3.00	25.48	0.14	1.00
3CWE591	6.00	26.11	0.32	1.00

#### 802.11g operation, distance 20cm

Antenna type	Gain (dBi) @ 2.4GHz	Conducted Power (dBm)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )
Internal	3.00	26.35	0.17	1.00
3CWE591	6.00	23.72	0.19	1.00

#### 802.11a operation, distance 20cm

Antenna type	Gain (dBi) @ 5GHz	Conducted Power (dBm)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )
Internal	3.00	23.91	0.10	1.00
3CWE591	8.00	24.25	0.33	1.00

### 5. Conclusion

The combined worst case for simultaneous 11b and 11a operation (using the 3CWE591 antenna) is  $0.65 \text{ mW/cm}^2$  – less than the specified limit of  $1.00 \text{ mW/cm}^2$ .