

§15.247 (b)(5) - RF EXPOSURE

According to §15.247(b)(5) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|---|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-15000 | / | / | 1.0 | 30 |

f = frequency in MHz

* = Plane-wave equivalent power density

MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

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

Base:

Maximum peak output power at antenna input terminal: 17.17 (dBm)

Maximum peak output power at antenna input terminal: 52.12 (mW)

Prediction distance: 20 (cm)

Predication frequency: 2400 (MHz)

Antenna Gain (typical): 1 (dBi)

Maximum antenna gain: 1.26 (numeric)

Power density at predication frequency at 20 cm: 0.013(mW/cm²)

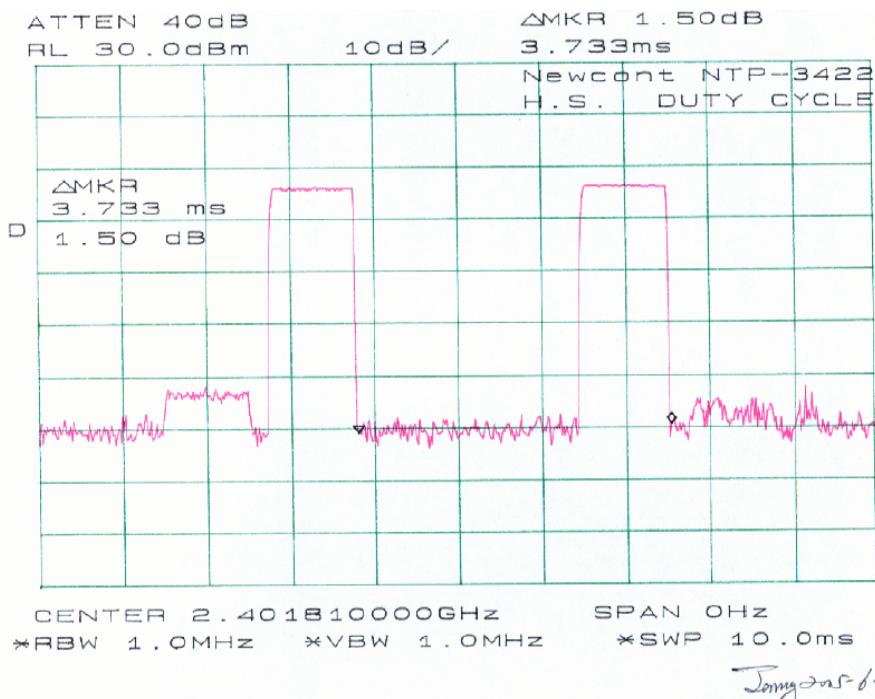
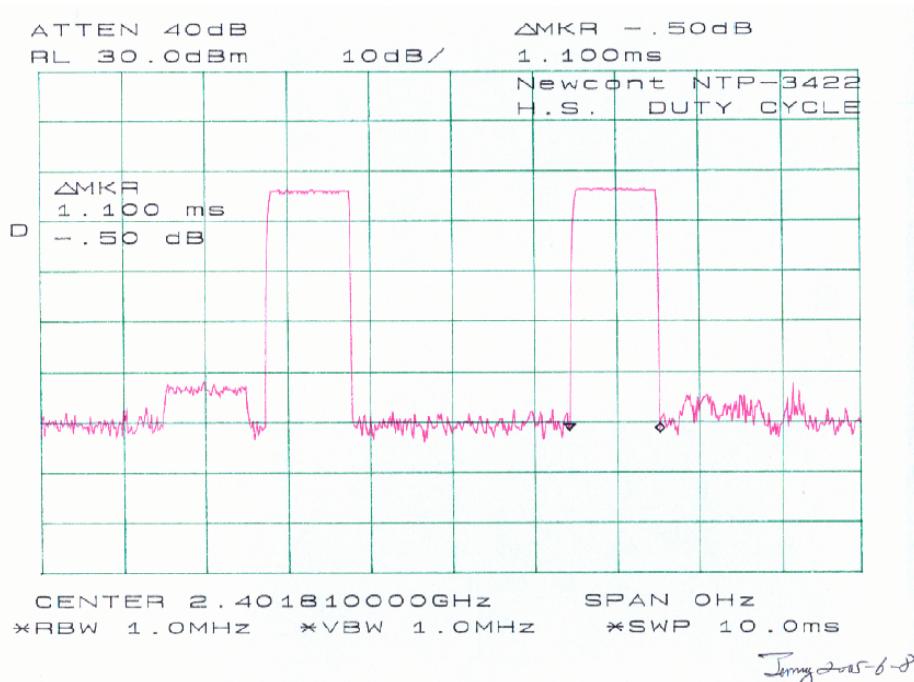
MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm²)

Test Result

The predicted power density level at 20 cm is 0.013 mW/cm^2 . This is below the uncontrolled exposure limit of 1mW/cm^2 at 2400 MHz. The EUT is used at least 20cm away from user's body. It is determined as mobile equipment.

Handset:

Please see the plots hereinafter for duty cycle measurement.



Duty Cycle = TXon / (TXon + TXoff) = 1.1/3.733

Antenna Gain = 2dBi

d < 2.5cm

Average Power = Peak Power x duty cycle = 48.41mW x 1.1/3.733 = 14.26mW < (60/2.4) mW

Therefore, according to the exclusion list, no SAR testing is needed.