

Evoke 440DR RF Exposure:-

The Evoke 440DR is intended as a mobile device. A warning statement is included in the user manual advising users to maintain a minimum distance of 20cm.

Evaluation is therefore for exposure potential against the MPE limits given in Appendix A of OET Bulletin 65, Supplement C: 1500-100,000MHz; 1mW/cm²

Compliance requirements are based upon General population / Uncontrolled exposure.

Equation (3) of OET Bulletin 65:

$$S = \frac{P_G}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm²)
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 centre of radiation of the antenna (appropriate units, e.g. cm)

Substituting known values for the Evoke F4:

WiFi RF worst case AV power, P = 45.7mW (+16.6dBm).

WiFi antenna gain (measured), G = 0.8 dB.

n.b. although the specified gain for the chip antenna is 0dBi, this is the best gain (Mid channel gain) measured in practice.

Distance, R = 20cm (for mobile use).

$$S = 0.011 < 1\text{mW/cm}^2$$

The Evoke 440DR may also be fitted with a pre-approved FCC Bluetooth USB dongle to its external USB port, which would therefore be co-located. Maximum power of all Bluetooth devices is 100mW eirp. The maximum MPE is therefore as follows.

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Bluetooth worst case average power, P = 100mW

Bluetooth antenna gain (maximum with above power is unity), G = 1.

Distance, R = 20cm (for mobile use).

$$S = 0.0199 < 1\text{mW/cm}^2$$

For co-location we can compare both items to the limit and sum the percentage of limit to check 100% not exceeded :

$$0.011/1 + 0.0199/1 = 3.09\% \text{ limit} < 100\%$$