RF Exposure Info

General Limits:

§1.1307
Cellular Radiotelephone Service (subpart H of part 22)
Non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP)

§1.1307
Personal Communications Services (part 24)
Broadband PCS (subpart E): non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 2000 W ERP (3280 W EIRP)

§1.1310 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)
(B) Limits for General Population/Uncontrolled Exposure
300–1500 MHz: f/1500 mW/cm²
1500–100,000 MHz: 1.0 mW/cm²

§2.1091
No routine evaluation required when the device …operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.

§24.232
(a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (e.i.r.p.) with an antenna height up to 300 meters HAAT.
b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power, …

§22.913
(a) Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

MPE <u>estimation</u>

Formulas: $S = P_{rad} / (4 \times Pi \times R^2)$

ERP @ 850 MHz: 27.61 dBm (0.577 W)
EIRP @ 1900 MHz: 24.01 dBm (0.252 W)

Lowest limit for **850 MHz fixed operations (@20cm)** where no routine evaluation is required is § 1.1310 : 0.57 mW/cm²

$S = 577$ mW / ($4 *$ pi $* 400$cm²) $= 0.11$ mW/cm²

Lowest limit for **1900 MHz fixed operations (@20cm)** where no routine evaluation is required is § 1.1310 : 1 mW/cm²

$S = 252$ mW / ($4 *$ pi $* 400$cm²) $= 0.05$ mW/cm²

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