

Comparing Standards for general public RF exposure levels

(900 and 1800 MHz are the two main existing UK mobile phone bands)

Prepared by Alasdair Philips, Technical Director, Powerwatch, June 2000

Multiple signals should be added together, as the square root of the sum of squares of the individual signals.

Figures in **bold** in the table below are the main units given in the guidance.

'Near-field' levels next to a working mobile phone handset vary enormously depending on the antenna design but can often exceed the electric field and power density levels set in the general exposure standards

| General Public Levels | Frequency MHz | E field V/m | Power W/m ² | Power m W/cm ² |
|-----------------------------------------------------------------------------|-----------------------|--------------------------|---------------------------|-----------------------------|
| NRPB, 1993 (Current UK Investigation Levels) | 900 1800 | 112 194 | 33 100 | 3300 10000 |
| FCC OET65:1997-01 (USA) based on ANSI/IEEE C95.1-1992 | 900 1800 | 47 61 | 6 10 | 600 1000 |
| Canadian Safety Code 6 (SC6) 1993 | 900 1800 | 47 61 | 6 10 | 600 1000 |
| ICNIRP, 1998 (recognised by WHO) CENELEC, 1995 (EU) | 900 1800 | 41 58 | 4.5 9 | 450 900 |
| Australia 1988 (under review) | 900 / 1800 | 27 | 2 | 200 |
| Two USA research bases (1995) | 30 - 100000 | 19 | 1 | 100 |
| Poland (non-stationary people) (stationary people) | 300 - 300000 | 19 6 | 1 0.1 | 100 10 |
| Russia 1988 (general public) | 300 - 300000 | 6 | 0.1 | 10 |
| Italy, Decree 381 (1999) | 30 - 30000 | 6 | 0.1 | 10 |
| Toronto Health Board 2000, proposal based on SC6/100 | 900 1800 | 5 6 | 0.06 0.1 | 6 10 |
| Swiss Ordinance ORNI (for base stations) From 1st.Feb.2000 | 900 1800 | 4 6 | not specified | not specified |
| EU & UK EMC Regulations equipment suscept test level (domestic & comm.) | 30 - 2000 | 3 | not specified | not specified |
| Typical max in public areas near base station masts (can be much higher) | 900 & 1800 | 2 | 0.01 | 1 |
| City of Salzburg, Austria, 1998 | 300 - 300000 | 0.62 | 0.001 | 0.1 |
| Dr Cherry (NZ) proposal for now | 300 - 300000 | 0.28 | 0.0002 | 0.02 |
| Average US (EPA 1980)-----> City Dweller max (FCC 1999)-----> | approx 30 - 300000 | < 0.13 < 2 | < 0.00005 < 0.01 | < 0.005 < 1 |
| Broadband 'natural' background | 300 - 3000 | < 0.00003 | < 0.00000001 | < 0.000001 |
| ** Typical, close to handset antenna | 900 & 1800 | 50 - 300 | 2 - 50 | 200 - 5000 |