16 RF Exposure

KDB 447498 MPE Calculation

Prediction of MPE limit at a given distance

Equation from IEEE C95.1

$$S = \frac{EIRP}{4 \pi R^2}$$
 re - arranged $R = \sqrt{\frac{EIRP}{S 4 \pi}}$

where:

S = power density R = distance to the centre of radiation of the antenna EIRP = EUT Maximum power

Note:

The EIRP was calculated by addition of the maximum conducted carrier power plus the antenna gain.

OR

The following formula may be used to convert field strength (FS) in volts/metre to transmitter output power (TP) in watts:

$$TP = (FS \times D)^2 / (30 \times G)$$

where D is the distance in metres between the two antennas and G is the antenna numerical gain referenced to isotropic gain.

Result

Prediction	Field	Maximum	Minimum	Power density	Power density
Frequency	Strength	EIRP	Distance	at distance	limit (S)
(MHz)	(dBuV/m)	(mW)	(cm)	(mW/cm²)	(mW/cm²)
24125	113.90	73.6	2.5	0.94	1