

RF Exposure
MPE Calculation
KDB 447498
Prediction of MPE limit at a given distance

Equation from IEEE C95.1

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

where:

S = power density

R = distance to the centre of radiation of the antenna

EIRP = EUT Maximum power

Note:

The EIRP was measured by substitution method

Result

Prediction Frequency (MHz)	EIRP (mW)	Maximum Duty Cycle*	Time Averaged EIRP (mW)	Minimum Distance (cm)	Power density at distance (mW/cm ²)	Power density limit (S) (mW/cm ²)
5725 - 5850	4000	85%	3400	16.5	0.99	1

* Customer declared duty cycle

EXEMPTION LIMITS FOR ROUTINE EVALUATION

All transmitters are exempt from routine SAR and RF exposure evaluations provided that they comply with the requirements of sections RSS-GEN Issue 5 sections 2.5.1 or 2.5.2

If the EUT does not meet the appropriate exemption limit, a complete SAR or RF exposure evaluation shall be performed. However, the power exemption limits in RSS-GEN Issue 5 Table 1 can be applied to reduce the number of test configurations (e.g. testing of a tablet edge).

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f0.5W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f0.6834 W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

Exemption Limits for Routine Evaluation – RF Exposure Evaluation

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

where:

S = power density

R = distance to the centre of radiation of the antenna

ERP = EUT Maximum power

RSS-102 i5		
Evaluation Frequency	5725 - 5850	MHz
Section 2.5 Exemption limits	4.85	Watts
Time Averaged EIRP	3.400	W
Exempt		