

**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 radiateon of the antenna

EIRP = EUT Maximum power

Note:

The EIRP was calculated as:

The maximum conducted output power adding up the maximum antenna gain.

**Result**

Prediction Frequency (MHz)	Maximum conducted output power (dBm)	Maximum antenna Gain (dBi)	Maximum EIRP (W)	Maximum Duty Cycle (dBi)	Minimum Distance (cm)	Power density at distance (mW/cm <sup>2</sup> )	Power density limit (S) (mW/cm <sup>2</sup> )
5725 - 5850	27.5	35.3	1905.46	100%	390	0.997	1

**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**

<b>RSS-102 i5</b>		
Evaluation Frequency	5725 - 5850	MHz
Section 2.5 Exemption limits	4.85	Watts
Conducted power	27.5	dBm
Antenna Gain	35.3	dBi
R	3.96	m
MPE Level	9.67	W/m <sup>2</sup>
Limit	9.69	W/m <sup>2</sup>