

RF Exposure

This calculation is based on the highest EIRP possible from the EUT considering maximum power and antenna gain.

The highest Average power of the EUT is 11 mW and the gain of the antenna is 2 dBi

1 MINIMUM SEPARATION DISTANCE PER OET 65

The following information provides the minimum separation distance for the EUT, as calculated from **FCC OET 65 Appendix B, Table 1A** "Guidelines for Occupational/Controlled Exposure"

Freq. MHz	S GP limit mW/cm ²	Highest Average RF power dBm	Antenna Gain dB	EIRP dBm	EIRP watts	MSD d meters
2412	1	10.4	2	12.4	0.0174	0.0118
5745	1	4.6	2	6.6	0.0046	0.0060

GP is the limit for general Population/Uncontrolled Exposure

MSD is the minimum Separation Distance

Notes on above table.

(S) limit is the Occupational/Controlled limit from OET 65 table 1B

EIRP = Power in dBm + Antenna Gain in dBi

MSD (Minimum Separation Distance) = $((\text{EIRP} \times 30) / 3770 \times \text{S})^{0.5}$

NOTE: For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.

2 RF EVALUATION FOR RSS-102E

Since the average e.i.r.p. of the Product is 17 mW at 2.4 GHz and 4.6 mW at 5.8 GHz and it is for controlled use, it is exempt from routine SAR and RF exposure evaluations in accordance to Sections 2.5.1 or 2.5.2 of RSS-102e. The product is for controlled use. It will not be sold to the general public.

2.5.1 Exemption from Routine Evaluation Limits – SAR Evaluation

SAR evaluation is required if the separation distance between the user and the radiating element of the device is less than or equal to 20 cm, except when the device operates as follows:

- from 3 kHz up to 1 GHz inclusively, and with output power (i.e. the higher of the conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 200 mW for general public use and 1000 mW for controlled use;
- above 1 GHz and up to 2.2 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 100 mW for general public use and 500 mW for controlled use;

- above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20 mW for general public use and 100 mW for controlled use;
- above 3 GHz and up to 6 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 10 mW for general public use and 50 mW for controlled use.

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the output power of the device was derived.

2.5.2 Exemption from Routine Evaluation Limits – RF Exposure Evaluation

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

- below 1.5 GHz and the maximum e.i.r.p. of the device is equal to or less than 2.5 W;
- at or above 1.5 GHz and the maximum e.i.r.p. of the device is equal to or less than 5 W.

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

The following information provides the calculation for section 4.2 of RSS-102e.

Freq. MHz	RF Power dBm	Antenna Gain dB	Effective RF power dBm		Measurment Distance meters	RF field from EUT V/m	Exposure GP limit V/m rms	Exposure CU limit V/m rms
2412	10.4	2	12.4	17.38	0.025	28.9	61.4	137.0
5745	4.6	2	6.6	4.57	0.025	14.8	61.4	137.0

GP is the limit for general Public

CU is the limit for Controlled Use

Note on above table.

$$ERP = (V/m * dist)^{2/30}$$