1.   Reference Document:

The Reference Document for the MPE limits has been taken as the OET Bulletin 65 (Edition 97-01).
Applicability to Canadian Document RSS section 2.2 and Safety Code 6 has also been referenced.

2.   Applicable Limits:

'Appendix A' details the relevant exposure criteria in the above FCC Document.
Section 2.2.1 Table 5 details the relevant exposure criteria in the Canadian Safety Code 6 Document.
For purposes of calculations on the STB3478 Cradle, the Power Density limits have been used which are applicable to General Population/Uncontrolled Exposure.
See values detailed below:

STB3478 Cradle operating at 2.4 – 2.483GHz
The Power Density Limit is 1mW/sq.cm

This level is equally applicable over the 1.5GHz–100GHz range for both FCC and Canadian Specifications.

Note:
These limits are only applicable to operation of equipment in the far field.
Far field is defined as $\lambda / 2\pi$
At frequency 2.4GHz $\lambda = (3 \times 10^8) / (2400 \times 10^6)$ m.

          i.e. $\lambda = 0.125$ m.

          so, $\lambda / 2\pi = 0.01989$ m.

These calculations therefore show that at STB3478 Cradle frequency the far field is applicable at distances greater than 19.9mm. from the transmitting antenna.

3.   Calculation of power density

The RF power density at an operational distance R from the antenna is calculated by the following expression $S = (P.G)/4\pi.R^2$

where S = power density in mW/sq.cm
       P = power output in mW
       G = antenna gain (numeric gain value)
       R = operating distance from antenna in cm.
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STB3478 Cradle. Maximum Permitted Exposure (MPE) Calculations: - continued

4.   STB3478 Cradle Safe Distance

Transmitted power   100mW
Antenna gain   1.333   (+2.5dBi)

The allowable working distance R (cm) from the antenna is calculated by the formula

$$R = [(P \times G)/ 4\pi.S]^{\frac{1}{2}}$$

where P = 100mW
       G = 1.333 (+2.5dBi)
       S = 1.0 mW/sq.cm

The relevant FCC and Canadian limits are defined at 1.0 mW/sq.cm

From the above, the minimum operational distance for the Power Density Limit of 1mW/sq.cm calculates to be at 3.256cm.

5.   Summary of results

The STB3478 Cradle is within the FCC and Canadian limits for General population/Uncontrolled Exposure at a minimum operating distance of 3.26cm.