

480V Telecell (EUT) RF Exposure:-

The 480V Telecell is intended as a fixed device, mounted on street lamps several meters above the Ground. However, installation engineers could come to within approx. 20cm of the transmitter when providing maintenance.

Evaluation is for exposure potential against the Exclusion limits given in **KDB447498** section 4.3.1.

Exclusion requirements are based upon worst case 1g SAR exclusion for body.

Equation of 4.3.1. a Transposed is:

$$\text{Exclusion in mW} = ((\text{Threshold} / (\sqrt{F})) * D$$

where: Threshold = 3 for 1g SAR Body
F = Frequency in GHz (0.9199875GHz)
D = Separation distance in mm (50mm)

Threshold in mW for 919.9875MHz @50mm based on equation above is

$$= 156.386873 \text{ mW}$$

Exclusion for 919.9875MHz and 200mm separation distance is based on 4.3.1a) 50mm threshold power and equation in 4.3.1 b)1) for 100-1500MHz.

$$= 1076.37\text{mW. (1.076W)}$$

Measured values for the 480V Telecell EUT were: 110.9 dBuV/m @ 3m, and due to the nature of the device conducted power could not be measured (high voltage present on antenna port) but is calculated from radiated power less antenna gain per ANSI C63.10. Therefore conducted power is calculated as +15.74 dBm (or 36 mW) EIRP.

However, declared conducted power including worst case tune up tolerance is +22dBm (158.49mW), set-up before assembly of the EUT and as such calculation is shown for both.

Allowing for EUT duty cycle of 1%, average radiated EUT power is 0.36mW, and average conducted power is 15.85mW. The EUT is therefore excluded from RF exposure / SAR testing requirements.

Note: Antenna gain included in field strength measurement.

With reference to **RSS-102 issue 5** section 2.5.2 the exemption limit for devices between 300M and 6GHz is: Source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} \text{ W}$ (adjusted for tune-up tolerance), where f is in MHz.

Which is **1.389W**

Therefore according to RSS-102 the device is exempt from routine SAR/RF exposure evaluations.