

6.13 Safety exposure levels

6.13.1 Standard Applicable: FCC 15.319(i)

UPCS devices are subject to the radio frequency radiation exposure requirements specified in FCC parts 1.1307 (b), 2.1091 and 2.1093, as appropriate. All equipment shall be considered to operate in a “general population / uncontrolled environment. For portable devices tests according to IEEE 1528 are requested, if applicable.

6.13.2 Measurement procedure

Consideration of radio frequency radiation exposure for EUT is done as

SAR test according OET65c (for PP)	<input type="checkbox"/>
MPE calculation as below (for FP, Repeater)	<input checked="" type="checkbox"/>

SAR test results: See SAR test report.

MPE calculation: not applicable

The EUT is considered as a mobile device according to OET Bulletin 65, Edition -97-01. Therefore distance to human body of min. 20 cm is determined.

The limit of Power density for General Population / Umcontrolled Exposure is 1.0 mW/cm².

Formula:

$$S = EIRP / 4\pi R^2$$

Calculation:

Radio Technology	Operation Frequency (MHz)	Distance (cm)	Maximum Peak Output Power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm ²)	Limit (mW/cm ²)
DECT	1928	20	12.52	-2	0.002242	1
ZigBee	2405	20	1.43	-2	0.000174	1

Simultaneous Evaluation:

ZigBee 2.4GHz and DECT radio can transmit simultaneously.

The formula of calculated MPE is:

$$\text{CPD1/LPD1} + \text{CPD2/LPD2} + \dots \text{etc.} < 1$$

CPD=Calculated Power Density

LPD=Limit of Power Density

Radio Technology	Worse CPD (mW/cm ²)
ZigBee	0.000174
DECT	0.002242

The MPE evaluation is $0.000174/1 + 0.002242/1 = 0.002416 < 1$, which confirm the device comply the MPE limit.

6.13.3 Results : Complies