Guidance and manufacturer´s declaration – electromagnetic emissions SmartLite PS

Table 201 according to EN 60601-1-2: 2001+A1:2006

The SmartLite PS is intended for the use in the electromagnetic environment specified below. The customer or the user of the SmartLite PS should assure that it is used in such an environment.

Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The SmartLite PS uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The SmartLite PS is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer´s declaration – electromagnetic immunity

Table 202 according to EN 60601-1-2 : 2001+A1:2006

The SmartLite PS is intended for use in the electromagnetic environment specified below. The customer or the user of SmartLite PS should assure that it is used in such an environment.

Immunity test	**IEC 60601-test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 3 kV contact ± 8 kV air	± 3 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient / bursts IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	Not applicable	
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Not applicable	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T for 0,5 cycle (>95% dip in U_T) 40 % U_T for 5 cycles (60 % dip in U_T) 70 % U_T for 25 cycles (30 % dip in U_T) < 5 % U_T for 5 s (>95 % dip in U_T)	Not applicable	
Power frequency (50/60 HZ) magnetic field IEC 61000-4-8	3 A/m	Not applicable	
NOTE: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer´s declaration – electromagnetic immunity

Table 204 according to EN 60601-1-2 : 2001+A1:2006

The SmartLite PS is intended for use in the electromagnetic environment specified below. The customer or the user of SmartLite PS should assure that it is used in such an environment.

Immunity test	IEC 60601- test level	Compliance level	Electromagnetic environment – guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the SmartLite PS, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance:**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 Mhz	Not applicable	
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	d = 1,2 * $\sqrt{P}$ for 80 MHz-800MHz d = 2,3 * $\sqrt{P}$ for 800 MHz-2,5GHz where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey [a], should be less than the compliance level in each frequency range [b]. Interference may occur in the vicinity of equipment marked with the following symbol: 

Note 1: At 80MHz and 800 MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radios (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the locations in which the SmartLite PS is used exceeds the applicable RF compliance level above, the SmartLite PS should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the SmartLite PS.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separations distances between portable and mobile RF communications equipment and the SmartLite PS

Table 206 according to EN 60601-1-2 : 2001+A1:2006

The SmartLite PS is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the SmartLites PS can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the SmartLite PS as recommended below, according to the maximum output power of the communications equipment.

	Separation distance (d) according to frequency of transmitter m		
Rated maximum output power of transmitter W	**150 KHz to 80 MHz** **d=1,2** $\sqrt{P}$	**80 MHz to 800 MHz** **d=1,2** $\sqrt{P}$	**800 MHz to 2,5 GHz** **d=2,3** $\sqrt{P}$
0,01	d = 0,12 m	d = 0,12m	d = 0,23m
0,1	d = 0,38m	d = 0,38m	d = 0,73m
1	d = 1,2m	d = 1,2m	d = 2,3m
10	d = 3,8m	d = 3,8m	d = 7,3m
100	d = 12m	d = 12m	d = 23m

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be determined using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: An additional factor of 10/3 is used in calculating the recommended separation distance for transmitters in the frequency range 80 MHz to 2,5 GHz to decrease the likelihood that mobile / portable communications equipment could cause interference if it is inadvertently brought into patient areas.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.