


Declaration of Conformity – Electromagnetic Compatibility

Guidance and manufacturer's declaration – electromagnetic emissions		
The geko™ & firefly™ are intended for use in the electromagnetic environment specified below. The customer or the user of the geko™ & firefly™ should assure that it is used in such an environment		
Emissions test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The geko™ & firefly™ use 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 B	The geko™ & firefly™ are suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies building used for domestic purposes. The geko™ & firefly™ are internally powered by a lithium coin cell CR2032
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Guidance and manufacturer's declaration – electromagnetic immunity			
The geko & firefly & firefly™ is intended for use in the electromagnetic environment specified below. The customer or the user of the geko & firefly & firefly™ should assure that it is used in such an environment			
Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (geko™ & firefly™) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 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/burst IEC 61000-4-2	±2 kV for power supply lines ±1 kV for input / output lines	Not applicable	Not applicable as internally powered device
Surge IEC61000-4-5	±1 kV differential mode ±2 kV common mode	Not applicable	Not applicable as internally powered device
Voltage dips, short interruptions and voltage variations on power supply lines IEC6100-4-11	<5% U _T (>95% dip in U _T) for 0.5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles	Not applicable	Not applicable as internally powered device

	<5% U_T (>95% dip in U_T) for 5 seconds		
Power frequency (50/60Hz) Magnetic field IEC61000-4-8	3 A/M	3 A/M	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment
Note U_T is the a.c. mains voltage prior to the application of the test level			

Guidance and manufacturer's declaration – electromagnetic immunity			
The geko & firefly™ is intended for use in the electromagnetic environment specified below. The customer or the user of the geko & firefly™ should assure that it is used in such an environment			
Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment-guidance
			Portable and mobile RF communications equipment should be no closer to any part of the geko™ & firefly™. Including cables, than the recommended distances calculated from the equation applicable to the frequency of the transmitter Recommended separation distance
Conductive RF IEC61000-4-6	3Vrms 150kHz to 80MHz	3Vrms	$d=1.2\sqrt{P}$
Radiated RF IEC61000-4-3	3V/m 80MHz to 2,5GHz	3V/m	$d=1.2\sqrt{P}$ 80MHz to 800MHz $d=2.3\sqrt{P}$ 800MHz to 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 metres(m). Field strengths from fixed RF transmitters, as determined by an electromagnetic 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 800MHz 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 transmitted, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment in the location due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the geko™ & firefly™ is used exceeds the applicable RF compliance level above, the geko & firefly™ should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the geko™ & firefly™

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

Recommended separation distances between portable and mobile communication equipment and the geko™ & firefly™

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

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter (m)		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1.0	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

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

Note 1. At 80MHz and 800MHz 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.

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