

KS 362 DIGITAL THERMOMETER

INFORMATION ABOUT ELECTROMAGNETIC COMPATIBILITY

Medical Electrical Equipment needs special precautions regarding Electromagnetic Compatibility (EMC). The device needs to be installed and put into service according to the EMC information provided in this chapter.

Portable and Mobile RF Communications Equipment can affect Medical Electrical Equipment. You can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications Equipment (transmitters) and the Non-contacted Infrared forehead thermometer as recommended below.

Guidance and manufacturer's declaration – electromagnetic emissions

The KS 362 model is intended for use in the electromagnetic environment specified below. The customer or the user of the KS 362 should assure that it is used in such an environment.

TABLE 1

Emmissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	KS 362 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	KS 362 are 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 CISPR11	Not applicable	
Voltage fluctuations / flicker emissions IEC 61000-3-	Not applicable	

Guidance & Declaration – electromagnetic immunity

Model KS 362 is intended for use in the electromagnetic environment specified below. The customer or the user of the KS 362 should assure that it is used in such an environment.

TABLE 2

Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6kV, ±8kV contact ±2kV, ±4kV, ±8kV ±15kV air	±6kV, ±8kV contact ±2kV, ±4kV ±8kV ±15kV 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 61000-4-4	±2kV for power supply lines ±1kV for input/output lines	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±2kV line to earth ±1kV for input/output lines	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines. IEC 61000-4-11	<5% Ut (>95% dip in Ut) for 0.5 cycle <5% Ut (<95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	Not applicable	Mains power quality should be that of a typical commercial or hospital environment. If the user of the MT-219 requires continued operation during power main interruptions, it is recommended that MT-219 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristics of a typical location in a typical commercial or hospital environment.

NOTE: Ut is the a.c. mains voltage prior to application of the test level.




Warning:

Digital thermometer, KS 362, should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the KS 362 should be observed to verify normal operation in the configuration in which it will be used.

Guidance & Declaration – electromagnetic immunity

The KS 362 model is intended for use in the electromagnetic environment specified below. The customer or the user of the KS 362 should assure that it is used in such an environment.

TABLE 3

Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment guidance
Conducted RF IEC 61000-4-6	3V/ms 150kHz to 80MHz	Not applicable	Portable and mobile RF communications equipment should be used no closer to any part of the MT-219 including cables than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Radiated RF IEC 61000-4-3	3V/m 80MHz to 2.5GHz	3V/m	$d=1.2 \sqrt{P}$ $d=1.2 \sqrt{P} \quad 80\text{MHz to } 800\text{MHz}$ $d=2.3 \sqrt{P} \quad 800\text{MHz to } 2.7 \text{ GHz}$ <p>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 to meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol</p> 
<p>NOTE 1: At 80MHz and 800MHz the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structure, objects and people.</p>			

A. Field strengths from fixed transmitters, such as base stations for radio (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 location in which the KS 362 is used exceeds the applicable RF compliance level above, the KS 362 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the KS 362.

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