

Electromagnetic Compatibility Information

Manufacturer's declaration-electromagnetic emissions						
The AM30 is intended for use in the electromagnetic environment (for home healthcare) specified below.						
The customer or	The customer or the user of the AM30 should assure that it is used in such an environment.					
Emission test	Compliance Electromagnetic environment-guidance					
		(for home healthcare environment)				
RF emissions CISPR 11	Group 1	The AM30 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 B	The AM30 is suitable for use in all establishments,				
Harmonic emissions IEC	Class A	including domestic establishments and those directly				
61000-3-2		connected to the public low-voltage power supply network				
Voltage fluctuations / flicker	Compliance	that supplies buildings used for domestic purposes.				
emissions IEC 61000-3-3						

	Manufacturer's de	eclaration-electromagnetic	immunity			
	The AM30 is intended for use in the electromagnetic environment (for home healthcare) specified below.					
	The customer or the user of the AM30 should assure that it is used in such an environment.					
J I		Electromagnetic				
	environment-guidance (for					
			healthcare environment)			
Electrostatic	Contact: ±8 kV	Contact: ±8 kV	Floors should be wood, concrete or			
discharge(ESD) IEC	Air ± 2 kV, ± 4 kV, ± 8	Air ± 2 kV, ± 4 kV, ± 8	ceramic tile. If floors are covered with			
61000-4-2	kV, ± 15 kV	kV, ± 15 kV	synthetic material, the relative			
			humidity should be at least 30%			
Electrical fast	$\pm 2kV$ for power supply	$\pm 2kV$ for power supply	Mains power quality should be that of			
transient/burst IEC	lines	lines	a typical home healthcare			
61000-4-4	± 1kV for input/output	Not applicable	environment.			
	lines					
Surge IEC	± 0.5 kV, ± 1 kV line(s)	± 0.5 kV, ± 1 kV line(s) to	Mains power quality should be that of			
61000-4-5	to line(s)	line(s) Not applicable	a typical home healthcare			
	± 0.5 kV, ± 1 kV, ± 2 kV		environment.			
	line(s) to earth					
Voltage Dips, short	Voltage dips:	Voltage dips:	Mains power quality should be that of			
interruptions and	0 % <i>U</i> T; 0,5 cycle	0 % <i>U</i> T; 0,5 cycle	a typical home healthcare			
voltage variations on	0 % UT; 1 cycle	0 % <i>U</i> T; 1 cycle	environment. If the user of the			
power supply input	70 % UT; 25/30 cycles	70 % UT; 25/30 cycles	AM30 requires continued operation			
lines IEC			during power mains interruptions, it is			
61000-4-11	Voltage interruptions:	Voltage interruptions:	recommended that the AM30 be			
	0 % UT; 250/300 cycle	0 % UT; 250/300 cycle	powered from an uninterruptible power			
			supply or a battery.			
Power frequency	30 A/m	30 A/m	The AM30 power frequency magnetic			
(50, 60 Hz) magnetic	50 Hz or 60 Hz	50 Hz	fields should be at levels characteristic			
field IEC 61000-4-8			of a typical location in a typical home			
	healthcare environment.					
NOTE UT is the a.c. n	nains voltage prior to applic	ation of the test level.				

TOSSMOX just a heartbeat away

The AM30 is intended for use in the electromagnetic environment (for home healthcare) specified below. The customer or the user of the AM30 should assure that is used in such and environment.Immunity testIEC 60601 test levelCompliance levelElectromagnetic environment-guidance (for home healthcare environment)Conducted Conducted3 Vrms: 0,15 MHz - 80 MHz3 Vrms: 0,15 MHz - 80 MHzPortable and mobile RF communications equipment should bands between 0,15 MHz and 80 MHzPortable and mobile RF communications equipment should bands between 0,15 MHz and 80 MHzPortable and mobile RF communications equipment should bands between 0,15 MHz and 80 MHzRadiated RF IEC 61000-4-310 V/m80 % AM at 1 kHz80 % AM at 1 kHzRadiated RF IEC 61000-4-310 V/m10 V/m 80 % AM at 1 kHzRecommended separation distance: d = 1,2 \sqrt{P} d = 1,2 \sqrt{P} 80 % AM at 1 kHzRadiated RF IEC 61000-4-310 V/m80 % AM at 1 kHz80 % AM at 1 kHzWhere P is the maximum output power rating of the transmitter manufacturer and d is the recording to the transmitter manufacturer and d is the recommended separation distance in metres (m).NOTE1: At 80 MHz and 800 MHz, the higher frequency range applies.Interference may occur in the vicinity of equipment marked with the following symbol: ((v))		Manufacture	's declaration-electromagneti	c immunity		
Immunity testIEC 60601 test levelCompliance levelElectromagnetic environment-guidance (for home healthcare environment)Conducted RF IEC3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz9 Portable and mobile RF communications equipment should be used no closer to any part of the AM30 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.Radiated RF IEC 61000-4-310 V/m 80 MHz - 2,7 GHz 80 % AM at 1 kHz80 % AM at 1 kHzRecommended separation distance: d = 1,2 \sqrt{P} 80 MHz to 800 MHz d = 2,3 \sqrt{P} 800MHz to 2,7 GHz 80 % AM at 1 kHz80 % AM at 1 kHzWhere P is the maximum output power rating of the transmitter manufacturer and d is the recommended separation distance in metres (m).Interference may occur in the vicinity of equipment marked with the following symbol:Implement should ($\frac{P}{P}$)	The AM					
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61000-4-66 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz be used no closer to any part of the AM30 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.Radiated RF IEC 61000-4-310 V/m 80 MHz - 2,7 GHz 80 MHz - 2,7 GHz 80 % AM at 1 kHz80 % AM at 1 kHz Recommended separation distance: d = 1,2 \sqrt{P} d = 1,2 \sqrt{P} 80 MHz to 800 MHz d = 2,3 \sqrt{P} 800MHz to 2,7 GHz Where <i>P</i> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <i>d</i> is the recommended separation distance in metres (m).Interference may occur in the vicinity of equipment marked with the following symbol:Interference may occur in the vicinity of equipment marked with the following symbol:	Conducted	3 Vrms:				
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Radiated RF IEC 61000-4-310 V/m 80 MHz - 2,7 GHz 80 MHz - 2,7 GHz 80 % AM at 1 kHz80 % AM at 1 kHzRecommended separation distance: $d = 1, 2 \sqrt{P}$ $d = 1, 2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2, 3 \sqrt{P}$ 800MHz to 2,7 GHzWhere 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).Interference may occur in the vicinity of equipment marked with the following symbol:		bands between 0,15 MHz	bands between 0,15 MHz	recommended separation distance		
Radiated RF IEC 61000-4-380 % AM at 1 kHz80 % AM at 1 kHzRecommended separation distance: $d = 1, 2 \sqrt{P}$ $d = 1, 2 \sqrt{P}$ $d = 1, 2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2, 3 \sqrt{P}$ 800MHz to 2,7 GHzWhere 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).Interference may occur in the vicinity of equipment marked with the following symbol:		and 80 MHz	and 80 MHz	calculated from the equation applicable		
Radiated RF IEC10 V/m10 V/mRecommended separation distance: $d = 1, 2 \sqrt{P}$ 61000-4-380 MHz - 2,7 GHz80 MHz - 2,7 GHz $d = 1, 2 \sqrt{P}$ 61000-4-380 % AM at 1 kHz80 % AM at 1 kHz $d = 2, 3 \sqrt{P}$ 80 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).Interference may occur in the vicinity of equipment marked with the following symbol:				to the frequency of the transmitter.		
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61000-4-380 % AM at 1 kHz80 % AM at 1 kHz $d = 2,3 \sqrt{P}$ 800MHz to 2,7 GHzWhere 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).Interference may occur in the vicinity of equipment marked with the following symbol: ((*))	Radiated RF	10 V/m	10 V/m	$d = 1,2 \sqrt{P}$		
61000-4-380 % AM at 1 kHz80 % AM at 1 kHz $d = 2,3 \sqrt{P}$ 800MHz to 2,7 GHzWhere 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).Interference may occur in the vicinity of equipment marked with the following symbol: ((*))	IEC	80 MHz – 2,7 GHz	80 MHz – 2,7 GHz	$d = 1.2 \sqrt{P} 80MHz$ to 800 MHz		
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).Interference may occur in the vicinity of equipment marked with the following symbol: (a)	61000-4-3	80 % AM at 1 kHz	80 % AM at 1 kHz			
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NOTE1: At 80 MHz and 800 MHz, the higher frequency range applies.				following symbol:		
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NOTE2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Recommended separation distance between portable and mobile RF communications equipment and the AM30 The AM30 is intended for use in an electromagnetic environment (for home healthcare) in which radiated RF disturbances are controlled. The customer or the user of the AM30 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the AM30 as recommended below, according to the maximum output power of the communications equipment.

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

For transmitters 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 rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

IDSSMOX just a heartbeat away

Manufacturer's declaration-electromagnetic immunity

Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment

The AM30 is intended for use in the electromagnetic environment (for home healthcare) specified below. The customer or the user of the AM30 should assure that it is used in such an environment.

Test frequency (MHz)	Band ^{a)} (MHz)	Service ^{a)}	Modulation ^{b)}	Maximum power (W)	Distance (m)	IMMUNITY TEST LEVEL (V/m)	Compliance LEVEL (V/m) (for home healthcare)
385	380 - 390	TETRA 400	Pulse modulation b) 18 Hz	1,8	0,3	27	27
450	430 – 470	GMRS 460, FRS 460	FM c) ±5 kHz deviation 1 kHz sine	2	0,3	28	28
710 745 780	704 – 787	LTE Band 13, 17	Pulse modulation b) 217 Hz	0,2	0,3	9	9
810 870 930	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation b) 18 Hz	2	0,3	28	28
1 720 1 845 1 970	1700 – 1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation b) 217 Hz	2	0,3	28	28
2 450	2400 - 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation b) 217 Hz	2	0,3	28	28
5 240 5 500 5 785	5100 - 5800	WLAN 802.11 a/n	Pulse modulation b) 217 Hz	0,2	0,3	9	9
an	NOTE: If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.						

a) For some services, only the uplink frequencies are included.

b) The carrier shall be modulated using a 50 % duty cycle square wave signal.

c) As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.