



INSIGHT Scanner

Electromagnetic Emissions

This equipment is intended for use in the electromagnetic environment specified below. The user of this equipment should assure that it is used in such an environment.

Emissions	Compliance According to	Electromagnetic Environment
Radiofrequency (RF) emissions	Group 1	The Scanner only uses RF energy for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
Conducted RF emission, AC mains port + telecom lines EN 61326-1 EN 55011 ANSI C63-4	Class B	The Scanner is suitable for use in all establishments other than domestic and those directly connected to a public low voltage power supply network which supplies buildings used for domestic purposes.
Radiated RF emission (EN55011:2009 + A1, CISPR11: 2009 + A1)	Class A	
Harmonic Distortion (EN61000-3-2 + A1+ A2, IEC61000-3-2 +A1 + A2)	Class A	
Voltage Fluctuations and Flicker (EN61000-3-3:2008, IEC61000-3-3:2008)	Complies	

Electromagnetic Immunity

This equipment is intended for use in the electromagnetic environment specified below. The user of this equipment should assure that it is used in such an environment.




Adapttech's Scanner shall not be used close to RF communications equipment emitting at Very High Frequency Range (e.g. amateur radio, global position system, air traffic). Otherwise, degradation of the performance of this equipment could result

Immunity Against	Compliance Level	Electromagnetic Environment
Electrostatic Discharge, ESD (EN 61000-4-2:2009, IEC 61000-4-2:2008)	Contact: 4kV Air: 8kV	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30% so that electrostatic charges are at suitable levels
Radiated RF EM fields (EN61000-4-3:2006+A1+A2, IEC61000-4-3:2006+A1+A2)	3V/m 80-1000MHz 3V/m 1400-2000MHz 1V/m 2000-2700 MHz 1kHz 80% AM	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Electrostatic Fast Transients/ Bursts (EN61000-4-4:2004+A1, IEC61000-4-4:2004+A1)	AC/DC Power Lines: ± 1 kV Signal: ± 0.5 kV	
Surges (EN61000-4-5:2006, IEC61000-4-5:2005)	AC Power lines ± 1 kV line to earth ± 0.5 kV line to line	
Conducted RF immunity (EN61000-4-6:2009, IEC61000-4-6:2008)	AC Power Lines 3Vrms 0.15-80 MHz 1kHz 80% AM Signal: ± 0.5 kV 3Vrms 0.15-80 MHz 1kHz 80% AM	
Voltage Dips and Interrupts (EN61000-4-11:2004, IEC61000-4-11:2004)	0 % residual for $\pm 0,5$ cycles 0 % residual for 1 cycles 70 % residual for 25 cycles 0 % residual for 250 cycles	

Guidance and manufacturer's declaration - electromagnetic immunity

The Adapttech's Scanner system is intended for use in the electromagnetic environment specified below. The customer or the user of the Adapttech's Scanner system should assure that it is used in such an environment.

Immunity Test	IEC 61326-1 Test Level	Compliance Level	Electromagnetic Environment
<p>Conducted RF</p> <p>EN 61000-4-6: 2009</p> <p>IEC 61000-4-6: 2008</p>	<p>3 Vrms</p> <p>150 kHz to 80 MHz</p>	<p>3V</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Adapttech's INSIGHT Scanner system including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> <p>$d=1.2\sqrt{P}$ 150 kHz to 80 MHz</p> <p>$d=1.2\sqrt{P}$ 80 MHz to 800 MHz</p> <p>$d=2.3\sqrt{P}$ 800 MHz to 2.5 MHz</p> <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 in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,¹ should be less than the compliance level in each frequency range.²</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>Radiated RF</p> <p>EN 61000-4-3: 2006 +A1+A2</p> <p>IEC 61000-4-3: 2006 +A1+A2</p>	<p>3V/m 80-1000MHz</p> <p>3V/m 1400-2000MHz</p> <p>1V/m 2000-2700 MHz</p>	<p>3V/m</p> <p>3V/m</p> <p>1V/m</p>	

NOTE 1 At 80 MHz 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.

1. The ISM (industrial, scientific, and medical) bands between 0.15MHz and 80MHz are 6.765MHz to 6.795MHz; 13.553MHz to 13.567MHz; 26.957MHz to 27.283MHz; and 40.66MHz to 40.70MHz.
2. 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 Adapttech's INSIGHT Scanner system is used exceeds the applicable RF compliance level above, the Adapttech's INSIGHT Scanner system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Adapttech's INSIGHT Scanner system.
3. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m. Radiated RF is expected to interfere with wearable system between 85 and 120 MHz

Recommended separation distances between portable and mobile RF communications equipment and Adapttech's Scanner.

The Adapttech's Scanner is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of Adapttech's Scanner can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Adapttech's Scanner 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		
	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	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 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.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 The ism (industrial, scientific, and medical) bands between 0.15MHz and 80MHz are 6.765MHz to 6.795MHz; 13.553MHz to 13.567MHz; 26.957MHz to 27.283MHz; and 40.66MHz to 40.70MHz.

NOTE 3 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

INSIGHT Wearable

Electromagnetic Emissions

This equipment is intended for use in the electromagnetic environment specified below. The user of this equipment should assure that it is used in such an environment.

Emissions	Compliance According to	Electromagnetic Environment
Radiofrequency (RF) emissions CISPR 11	Group 1	The wearable system only uses RF energy for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
Conducted rf emission (EN55011:2009 + A1) CISPR 11 in charging mode	Class B	The wearable system is suitable for use in all establishments including those directly connected to a public low voltage power supply network.
Radiated RF emission (EN55011:2009 + A1) in battery and charging mode	Class B	
Harmonic Distortion (EN61000-3-2 + A1+ A2) in charging mode	Class A	
Voltage Fluctuations and Flicker (EN61000-3-3:2013) in charging mode	Complies	

Electromagnetic Immunity

This equipment is intended for use in the electromagnetic environment specified below. The user of this equipment should assure that it is used in such an environment.

⚠ Adapttech's wearable system (INSIGHT Wearable, Wearable IMU and Sensor) shall not be used close to RF communications equipment emitting at Very High Frequency Range (e.g. amateur radio, global position system, air traffic). Otherwise, degradation of the performance of this equipment could result.

Immunity Against	Compliance Level	Electromagnetic Environment
Electrostatic Discharge, ESD (EN 61000-4-2:2009) in battery and charging mode	Contact: ± 8kV Air: ± 15kV	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30% so that electrostatic charges are at suitable levels
Radiated RF EM fields EN61000-4-3:2006 + A1 + IS1 + A2 in battery and charging mode	3V/m 80-1000MHz 1000-6000MHz 1kHz 80% AM	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity fields from RF wireless communications equipment EN61000-4-3:2006 + A1 + IS1 + A2 in battery and charging mode	As detailed in section 8.10 of standard. Complies	
Electrostatic Fast Transients/ Bursts (EN61000-4-4:2012) In charging mode Surges (EN61000-4-5:2012) In charging mode Conducted RF immunity (EN61000-4-6:2014) In charging mode	AC and DC Power Lines: ± 2kV Signal: ± 1kV 100 kHz repetition frequency ± 1 kV line to line 3Vrms (6Vrms in ISM bands) 0.15-80 MHz 1kHz 80% AM	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Voltage Dips and Interrupts (EN61000-4-11:2004) In charging mode	0 % UT ; 0,5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°. 0 % UT ; 1 cycle and 70 % UT ; 25/30 cycles Single phase: at 0° 0 % UT ; 250/300 cycle	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Guidance and manufacturer's declaration - electromagnetic immunity

The Adapttech's wearable system is intended for use in the electromagnetic environment specified below. The customer or the user of the Adapttech's wearable system should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 Vrms 150 kHz to 80 MHz</p> <p>6 Vrms in ISM bands¹</p> <p>3 V/m 80 MHz to 2.5 GHz</p>	<p>3V</p> <p>6 Vrms in ISM bands</p> <p>3 V/m</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Adapttech's wearable system including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance $d=1.2\sqrt{P}$ 150 kHz to 80 MHz $d=1.2\sqrt{P}$ 80 MHz to 800 MHz $d=2.3\sqrt{P}$ 800 MHz to 2.5 MHz</p> <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 in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,² should be less than the compliance level in each frequency range.³</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p>

NOTE 1 At 80 MHz 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.

1. The ISM (industrial, scientific, and medical) bands between 0.15MHz and 80MHz are 6.765MHz to 6.795MHz; 13.553MHz to 13.567MHz; 26.957MHz to 27.283MHz; and 40.66MHz to 40.70MHz.
2. 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 Adapttech's wearable system is used exceeds the applicable RF compliance level above, the Adapttech's wearable system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Adapttech's wearable system.
3. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m. Radiated RF is expected to interfere with wearable system between 85 and 120 MHz.

Recommended separation distances between portable and mobile RF communications equipment and Adapttech's wearable system (INSIGHT Wearable, Wearable IMU and Sensors).

The Adapttech's wearable system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of Adapttech's wearable system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Adapttech's wearable system 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		
	150 hz to 80 mhz	80 mhz to 800 mhz	800 mhz to 2,5 ghz
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
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100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance 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.			
<p>NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2 The ism (industrial, scientific, and medical) bands between 0.15MHz and 80MHz are 6.765MHz to 6.795MHz; 13.553MHz to 13.567MHz; 26.957MHz to 27.283MHz; and 40.66MHz to 40.70MHz.</p> <p>NOTE 3 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

INSIGHT Sensors

This equipment is intended for use in the electromagnetic environment specified below. The user of this equipment should assure that it is used in such an environment.

Emissions	Compliance According to	Electromagnetic Environment
Radiofrequency (RF) emissions CISPR 11	Group 1	The wearable system only uses RF energy for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
Conducted RF emission (EN55011:2009 + A1) CISPR 11 in charging mode	Class B	The wearable system is suitable for use in all establishments including those directly connected to a public low voltage power supply network.
Radiated RF emission (EN55011:2009 + A1) in battery and charging mode	Class B	
Harmonic Distortion (EN61000-3-2 + A1+ A2) in charging mode	Class A	
Voltage Fluctuations and Flicker (EN61000-3-3:2013) in charging mode	Complies	

Electromagnetic Immunity

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Immunity Against	Compliance Level	Electromagnetic Environment
Electrostatic Discharge, ESD (EN 61000-4-2:2009) in battery and charging mode	Contact: $\pm 8\text{kV}$ Air: $\pm 15\text{kV}$	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30% so that electrostatic charges are at suitable levels
Radiated RF EM fields EN61000-4-3:2006 + A1 + IS1 + A2 in battery and charging mode	3V/m 80-1000MHz 1000-6000MHz 1kHz 80% AM	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity fields from RF wireless communications equipment EN61000-4-3:2006 + A1 + IS1 + A2 in battery and charging mode	As detailed in section 8.10 of standard. Complies	
Electrostatic Fast Transients/ Bursts (EN61000-4-4:2012) In charging mode Surges (EN61000-4-5:2012) In charging mode Conducted RF immunity (EN61000-4-6:2014) In charging mode	AC and DC Power Lines: $\pm 2\text{kV}$ Signal: $\pm 1\text{kV}$ 100 kHz repetition frequency $\pm 1\text{ kV}$ line to line 3Vrms (6Vrms in ISM bands) 0.15-80 MHz 1kHz 80% AM	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Voltage Dips and Interrupts (EN61000-4-11:2004) In charging mode	0 % UT ; 0,5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°. 0 % UT ; 1 cycle and 70 % UT ; 25/30 cycles Single phase: at 0° 0 % UT ; 250/300 cycle	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

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