

SC 62A/Publication IEC 60601-1-2 (2007), Third edition/I-SH 01

## MEDICAL ELECTRICAL EQUIPMENT –

### Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests

#### INTERPRETATION SHEET

This interpretation sheet has been prepared by SC 62A: Common aspects of electrical equipment used in medical practice.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
62A/685/ISH	62A/694/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

#### Subclause 6.2.2.2 e) (ESD IMMUNITY)

(This is also applicable to Subclause 36.202.2 b) 5) in IEC 60601-1-2:2001<sup>1)</sup>.)

This subclause states the following:

*The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL input voltages and frequencies.*

This is clarified by the following:

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. If the ME EQUIPMENT or ME SYSTEM is tested at one power input voltage and one power input frequency meeting this specification, it is not necessary to re-test at additional voltages or frequencies.*

#### Subclause 6.2.3.2 j) (Radiated RF IMMUNITY)

(This is also applicable to Subclause 36.202.3 b) 10) in IEC 60601-1-2:2001.)

This subclause states the following:

*The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL input voltages and frequencies.*

This is clarified by the following:

<sup>1)</sup> A consolidated edition 2.1 exists (withdrawn) including IEC 60601-1-2:2001 and its Amendment 1 (2004).

*The test may be performed at any power input voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. If the EQUIPMENT or SYSTEM is tested at one power input voltage and one power input frequency meeting this specification, it is not necessary to re-test at additional voltages or frequencies.*

**Subclause 6.2.4.2 e) (EFT/burst IMMUNITY)**

(This is also applicable to Subclause 36.202.4 b) 5) in IEC 60601-1-2:2001.)

This subclause states the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test is performed at the minimum and maximum RATED input voltages. The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL power frequencies.*

This is clarified by the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test shall be performed at the minimum and maximum ME EQUIPMENT or ME SYSTEM RATED power input voltages. The test may be performed at any power input frequency within the ME EQUIPMENT or ME SYSTEM RATED range. If the ME EQUIPMENT or ME SYSTEM is tested at power input voltages and a power input frequency meeting these specifications, it is not necessary to re-test at additional voltages or frequencies.*

**Subclause 6.2.5.2 f) (Surge IMMUNITY)**

(This is also applicable to Subclause 36.202.5 b) 6) in IEC 60601-1-2:2001.)

This subclause states the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test is performed at the minimum and maximum RATED input voltages. The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL power frequencies.*

This is clarified by the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test shall be performed at the minimum and maximum ME EQUIPMENT or ME SYSTEM RATED power input voltages. The test may be performed at any power input frequency within the ME EQUIPMENT or ME SYSTEM RATED range. If the ME EQUIPMENT or ME SYSTEM is tested at power input voltages and a power input frequency meeting these specifications, it is not necessary to re-test at additional voltages or frequencies.*

**Subclause 6.2.6.2 j) (Conducted RF IMMUNITY)**

(This is also applicable to Subclause 36.202.6 b) 10) in IEC 60601-1-2:2001.)

This subclause states the following:

*The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL input voltages and frequencies.*

This is clarified by the following:

*The test may be performed at any power input voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. If the EQUIPMENT or SYSTEM is*

tested at one power input voltage and one power input frequency meeting this specification, it is not necessary to re-test at additional voltages or frequencies.

**Subclause 6.2.7.2 c) (Voltage dips and interruptions IMMUNITY)**

(This is also applicable to Subclause 36.202.7 b) 4) in IEC 60601-1-2:2001.)

This subclause states the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test is performed at the minimum and maximum RATED input voltages. The test is performed at the minimum RATED power frequency.*

This is clarified by the following:

*For ME EQUIPMENT and ME SYSTEMS that have, for power input, multiple voltage settings or autoranging voltage capability, the test shall be performed at the minimum and maximum ME EQUIPMENT or ME SYSTEM RATED input voltages. The test shall be performed with the ME EQUIPMENT or ME SYSTEM powered at the minimum RATED power frequency. If the ME EQUIPMENT or ME SYSTEM is tested at power input voltages and a power input frequency meeting these specifications, it is not necessary to re-test at additional voltages or frequencies.*

**Subclause 6.2.8.1.2 (Power-frequency magnetic field IMMUNITY)**

(This is also applicable to Subclause 36.202.8.1 b) in IEC 60601-1-2:2001.)

This subclause states the following:

a) (Item 1) in IEC 60601-1-2:2001)

*Only the continuous field test shall be performed.*

- *The test is performed at both 50 Hz and 60 Hz, with the exception that ME EQUIPMENT and ME SYSTEMS RATED for use only at one of these frequencies need only be tested at that frequency. In either case, during the test, the ME EQUIPMENT or ME SYSTEM is powered at the same frequency as the applied magnetic field.*
- *If the ME EQUIPMENT or ME SYSTEM is INTERNALLY POWERED or powered from an external d.c. supply, the test is performed at both 50 Hz and 60 Hz, with the exception that ME EQUIPMENT and ME SYSTEMS intended for use only in areas supplied at one of these frequencies need be tested only at that frequency.*

b) (Item 2) in IEC 60601-1-2:2001))

*The test may be performed with the ME EQUIPMENT or ME SYSTEM powered at any one of its NOMINAL power voltages.*

Item b) is clarified by the following:

*The test may be performed at any power input voltage within the ME EQUIPMENT or ME SYSTEM RATED power input voltage range. If the EQUIPMENT or SYSTEM is tested at one power input voltage, it is not necessary to re-test at additional voltages.*

For EMISSIONS, IEC 60601-1-2 references CISPR 11. IEC 60601-1-2 does not add any clarification regarding the power input voltage and frequency during EMISSIONS testing.

**Subclause 7.5.3 of CISPR 11:2009** states the following:

Mains power at the nominal voltage shall be supplied.

This is clarified by the following:

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. If the ME EQUIPMENT or ME SYSTEM is tested at one power input voltage and one power input frequency meeting this specification, it is not necessary to re-test at additional voltages or frequencies.*

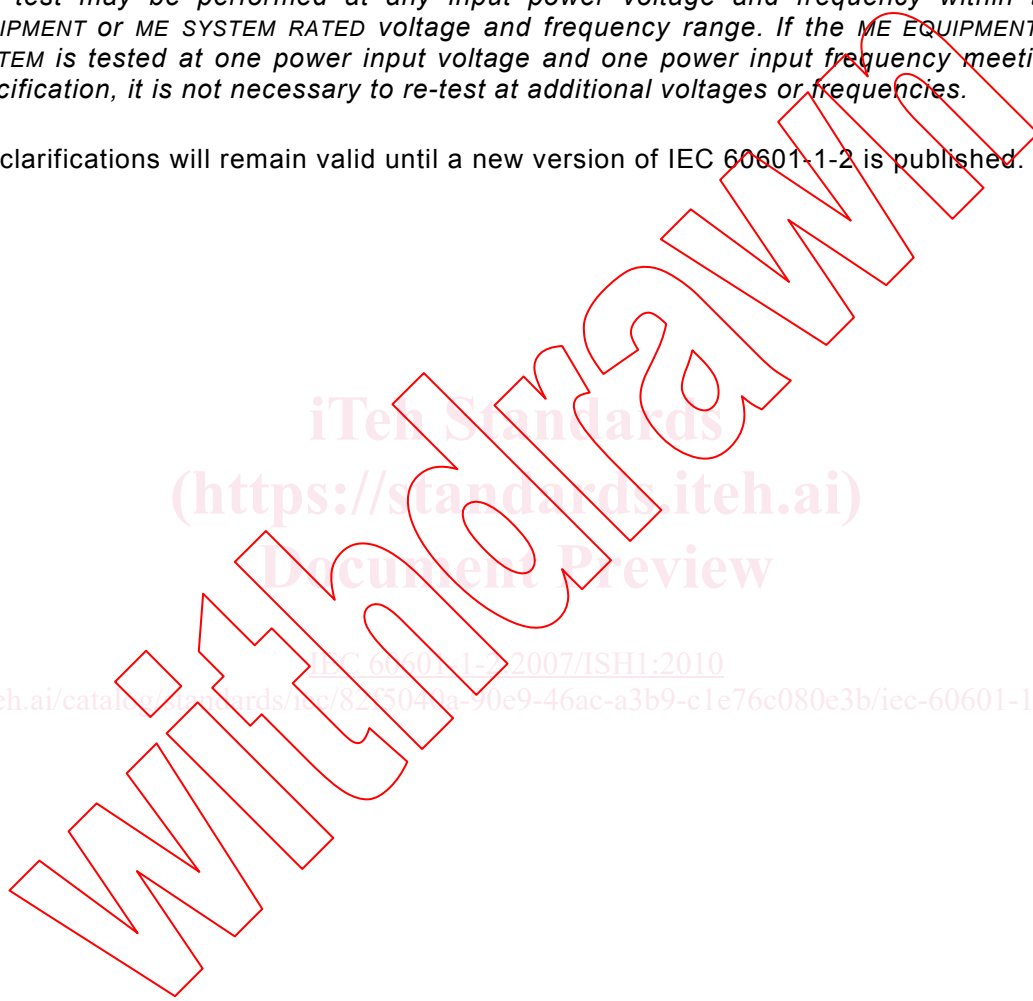
**Subclause 9.1 of CISPR 11:2009** states the following:

Power at the nominal voltage shall be supplied.

This is clarified by the following:

*The test may be performed at any input power voltage and frequency within the ME EQUIPMENT or ME SYSTEM RATED voltage and frequency range. If the ME EQUIPMENT or ME SYSTEM is tested at one power input voltage and one power input frequency meeting this specification, it is not necessary to re-test at additional voltages or frequencies.*

These clarifications will remain valid until a new version of IEC 60601-1-2 is published.



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