

CEA Standard

Turntable Measurement Standard

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(Formulated under the cognizance of the CEA's **R3 Audio Systems Committee**.)

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FOREWORD

This standard was developed under the auspices of the Consumer Electronics Association (CEA, formerly CEMA) R3 Audio Systems Committee.

The Audio Division of EIA/CEG*, in its continuing effort to promote high fidelity consumer equipment to the public, sponsored -this Committee, consisting of Industry members and nonmembers, to devise a standard method of measurement and presentation of results for record playing equipment.

The Committee's objectives was to define the most commonly used terms and determine which specifications are of primary and secondary importance. In addition, the Committee tried to eliminate wherever possible, the problems associated with cartridges and test records. Since the "turntable" is commonly sold as a universal component capable of accepting almost every phono cartridge and playing every record, the Committee felt that this Standard should concentrate in this area.

We are deeply indebted to the National Association of Broadcasters (NAB), Deutsche Industrie Normen (DIN), and the Electronic Industries Association of Japan (EIAJ) for allowing us to excerpt from their Standards and many of their methods of measurement.

It is the Committee's fervent hope that all manufacturers will accept ii this Measurement Standard and report their results as specifications in their literature and advertising. Further, we are hopeful that critics and reviewers of equipment will adopt these Standards and that the public be made aware that a specification was derived from the same method of measurement used by all manufacturers of record playing equipment.

The Committee tried to avoid any indication of qualitative results. No phono cartridge is suggested except that the one used for the tests must be reported by name and model number. This is no indication that other phono cartridges do not perform as well, especially if they have the same mechanical and electrical characteristics. No test record is specified; however, it is noted that EIAJ is working on a new set of records that they anticipate will be a more advanced series. The records are used mainly to set a level and to obtain a frequency necessary as a reference.

This Committee encourages other Committees to develop measurement Standards for phono cartridges and if the reporting method is consistent with this Standard, the public will have the opportunity of "marrying" the best cartridge to a particular turntable system.

* Consumer Electronics Group

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Turntable Measurement Standard

1 Scope

This Standard applies to stereophonic record players for home use.

NOTE:

1. The record player shall consist of only the turntable mechanism, tone arm and cartridge.
2. Record changers shall be included in this Standard.
3. The Standard does not cover phonographs which include amplifiers, loudspeakers, etc.
4. For turntable systems without cartridges, measurements shall be made by using a specified cartridge.
5. For turntable mechanism supplied without tone arm, measurements shall be made by using a specified tone arm and cartridge.
6. Test methods for turntable mechanisms are included in this Standard.
7. This Standard excludes all aspects of safety

1.1 Object

This Standard gives recommendations relative to the characteristics to be specified and the methods of measurement for record players

1.2 Standard Test Conditions

Ambient Conditions

- (a) Temperature $20^{\circ} \pm 2^{\circ}$ C
- (b) Relative Humidity $60 \pm 15\%$
- (c) Air Pressure 960 ± 100 mba

1.3 Supply Voltage

- (a) The supply voltage shall be rated voltage ($\pm 1\%$) of that specified by the manufacturer, for equipment under test.
- (b) Frequency shall be rated frequency ($\pm 0.5\%$) of that specified by the manufacturer and distortion shall be less than 3%.

1.4 Rated Load Impedance

The impedance, as specified by the manufacturer, shall be used to terminate each audio output of the record player. Unless otherwise specified by the manufacturer, the rated load impedance shall be a constant pure resistance. Unless otherwise specified by the manufacturer, load impedance shall be 47 k Ω for velocity sensitive type pickups

2 Definitions – General Terms

Turntable Mechanism - A mechanism whose function is to rotate a phonograph disc at a predetermined speed.

Tone Arm - A device to support a phono transducer (pickup, cartridge, etc.) and allow its stylus to track a phono record.

Phono Pickup (Cartridge) - A transducer designed to convert mechanical modulations into an electrical signal.

Turntable System - A turntable mechanism with a tone arm suitably mounted and fitted with a phono cartridge.

Single Play Turntable System - A turntable system designed to accommodate one phono record at a time.