

Recognized as an
American National Standard (ANSI)

IEEE Std 213-1987
Supersedes ANSI/IEEE Std 213-1961 and IEEE Std 214-1961

IEEE Standard Procedure for Measuring Conducted Emissions in the Range of 300 kHz to 25 MHz from Television and FM Broadcast Receivers to Power Lines

Sponsor
**Standards Committee
of the
Electromagnetic Compatibility Society**

Approved December 10, 1987
Reaffirmed September 3, 1993

IEEE Standards Board

Approved July 28, 1988
Reaffirmed March 18, 1993

American National Standards Institute

© Copyright 1988 by

The Institute of Electrical and Electronics Engineers, Inc
345 East 47th Street, New York, NY 10017, USA

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

IEEE Standards documents are developed within the Technical Committees of the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Board. Members of the committees serve voluntarily and without compensation. They are not necessarily members of the Institute. The standards developed within IEEE represent a consensus of the broad expertise on the subject within the Institute as well as those activities outside of IEEE which have expressed an interest in participating in the development of the standard.

Use of an IEEE Standard is wholly voluntary. The existence of an IEEE Standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE Standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard. Every IEEE Standard is subjected to review at least once every five years for revision or reaffirmation. When a document is more than five years old, and has not been reaffirmed, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE Standard.

Comments for revision of IEEE Standards are welcome from any interested party, regardless of membership affiliation with IEEE. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments.

Interpretations: Occasionally questions may arise regarding the meaning of portions of standards as they relate to specific applications. When the need for interpretations is brought to the attention of IEEE, the Institute will initiate action to prepare appropriate responses. Since IEEE Standards represent a consensus of all concerned interests, it is important to ensure that any interpretation has also received the concurrence of a balance of interests. For this reason IEEE and the members of its technical committees are not able to provide an instant response to interpretation requests except in those cases where the matter has previously received formal consideration.

Comments on standards and requests for interpretations should be addressed to:

Secretary, IEEE Standards Board
345 East 47th Street
New York, NY 10017
USA

IEEE Standards documents are adopted by the institute of Electrical and Electronics Engineers without regard to whether their adoption may involve patents on articles, materials, or processes. Such adoption does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the standards documents.

Foreword

(This Foreword is not a part of ANSI/IEEE Std 213-1987, IEEE Standard Procedure for Measuring Conducted Emission in the Range of 300 kHz to 25 MHz from Television and FM Broadcast Receivers to Power Lines.)

This standard is a revision of ANSI/IEEE Std 213-1961 (R 1974), Radio Interference: Methods Measurement of Conducted Interference Output to the Power Line from FM and Television Broadcast Receivers in the Range of 300 kHz to 25 MHz and also incorporated is IEEE Std 214-1961 (R 1985), IEEE Standard Construction Drawings of Line Impedance Network Required for Measurement of Conducted Interference to the Power Line from FM and Television Broadcast Receivers in the Range of 300 kHz to 25 MHz as Specified in IEEE Std 213-1961 .

This standard is specifically written to outline the procedures for testing television and FM broadcast receivers. The user is cautioned that this method might not be appropriate for conducted emissions testing of systems or products other than televisions or FM receivers. Other more general methods exist and it is suggested that they be used for review. These include but are not limited to ANSI C63.4-1981 , American National Standard Methods of Measurement of Radio Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 10 kHz to 1 GHz.

At the time of approval of this standard the members of the working group were as follows:

Michael J. Hart, *Chair*

Richard Fabina

At the time of approval of this standard the members of the Electromagnetic Compatibility Society Standards Committee were as follows:

Donald N. Heirman, *Chair*
H. Stephen Berger, *Secretary*

Edwin Bronaugh
W. Eugene Cory
Glen Dash
Hugh Denny
Salvatore Gentile

Eugene Knowles
James Parker, Jr.
Risabur Sato
Ralph Showers
Edward Skomal

Leonard Thomas, Sr.
L. Art Wall
Daniel Weinberg

The following persons were on the balloting committee of the EMCS Standards Committee that approved this standard for submission to the IEEE Standards Board:

W. Eugene Cory
Hugh Denny
Harold Gauper
Donald N. Heirman
Hank Knoller

Eugene Knowles
George Kunkel
John Neubauer
Fred Nichols
Ralph Showers

Edward Skomal
Harold E. Taggart
Ralph Taylor
Leonard Thomas, Sr.
L. Art Wall

When the IEEE Standards Board approved this standard on December 10, 1987, it had the following membership:

Donald C. Fleckenstein, *Chair*
Marco W. Migliaro, *Vice Chair*
Andrew G. Salem, *Secretary*

James H. Beall
Dennis Bodson
Marshall L. Cain
James M. Daly

Stephen R. Dillon
Eugene P. Fogarty
Jay Forster
Kenneth D. Hendrix

Irvin N. Howell
Leslie R. Kerr
Jack Kinn
Irving Kolodny

Joseph L. Koepfinger*
Edward Lohse
John May
Lawrence V. McCall
L. Bruce McClung

Donald T. Michael*
L. John Rankine
John P. Riganati
Gary S. Robinson
Frank L. Rose

Robert E. Rountree
William R. Tackaberry
William B. Wilkens
Helen M. Wood

*Member emeritus

Contents

CLAUSE	PAGE
1. Introduction	1
2. Equipment Required and Method of Installation	1
2.1 Equipment Required	1
2.2 Installation of Equipment.....	7
3. Measurement Procedure.....	9
3.1 Equipment Assembly and Initial Adjustments.....	9
3.2 Emission Voltage Measurement	9
3.3 Adjustment of Operating Controls	9
3.4 Recording of Measured Data	9
4. Construction Drawings of Line Impedance Stabilization Network Required for Measurement of Conducted Interference to the Power Line from FM and Television Broadcast Receivers in the Range of 300 kHz to 25 MHz	9

IEEE Standard Procedure for Measuring Conducted Emissions in the Range of 300 kHz to 25 MHz from Television and FM Broadcast Receivers to Power Lines

1. Introduction

Television and FM broadcast receivers are frequently potential sources of interference to other television and FM broadcast receivers and to receivers in other services. This standard defines a method for obtaining a measure of the emissions conducted by the power line from these potential interference sources in the frequency range of 300 kHz to 25 MHz. This standard describes standard input signals, the equipment setup, and measurement techniques.

2. Equipment Required and Method of Installation

2.1 Equipment Required

To perform the measurements described in this standard the following equipment is required:

- 1) Shielded room
- 2) A power line impedance stabilization network (LISN)
- 3) A source of a standard rf input signal
- 4) A tuned voltmeter
- 5) A picture carrier intermediate frequency (IF) signal source (for television receivers only)

2.1.1 Shielded Room

A shielded room large enough to meet the requirements of 2.2.1 with adequate shielding and filtering to eliminate external interference. A typical size is 8 ft high by 8 ft wide by 10 ft long.