

SCTE | **STANDARDS**

Interface Practices Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 78 2021

Test Method for Transfer Impedance

NOTICE

The Society of Cable Telecommunications Engineers (SCTE) Standards and Operational Practices (hereafter called “documents”) are intended to serve the public interest by providing specifications, test methods and procedures that promote uniformity of product, interoperability, interchangeability, best practices, and the long term reliability of broadband communications facilities. These documents shall not in any way preclude any member or non-member of SCTE from manufacturing or selling products not conforming to such documents, nor shall the existence of such standards preclude their voluntary use by those other than SCTE members.

SCTE assumes no obligations or liability whatsoever to any party who may adopt the documents. Such adopting party assumes all risks associated with adoption of these documents and accepts full responsibility for any damage and/or claims arising from the adoption of such documents.

NOTE: The user’s attention is called to the possibility that compliance with this document may require the use of an invention covered by patent rights. By publication of this document, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the standards developer. SCTE shall not be responsible for identifying patents for which a license may be required or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Patent holders who believe that they hold patents which are essential to the implementation of this document have been requested to provide information about those patents and any related licensing terms and conditions. Any such declarations made before or after publication of this document are available on the SCTE web site at <https://scte.org>.

All Rights Reserved
© Society of Cable Telecommunications Engineers, Inc. 2021
140 Philips Road
Exton, PA 19341

Document Types and Tags

Document Type: Specification

Document Tags:

- | | | |
|---|------------------------------------|--|
| ☒ Test or Measurement | ☐ Checklist | ☐ Facility |
| ☐ Architecture or Framework | ☐ Metric | ☐ Access Network |
| ☐ Procedure, Process or Method | ☐ Cloud | ☐ Customer Premises |

Document Release History

Release	Date
SCTE 78 2007	08/03/2007
SCTE 78 2012	08/13/2012
SCTE 78 2017	10/23/2017

Note: Standards that are released multiple times in the same year use: a, b, c, etc. to indicate normative balloted updates and/or r1, r2, r3, etc. to indicate editorial changes to a released document after the year.

Table of Contents

Title	Page Number
NOTICE.....	2
Document Types and Tags	3
Document Release History	3
Table of Contents	4
1. Introduction.....	5
1.1. Executive Summary	5
1.2. Scope	5
1.3. Benefits	5
1.4. Intended Audience	5
1.5. Areas for Further Investigation or to be Added in Future Versions.....	5
2. Normative References	5
2.1. SCTE References	5
2.2. Standards from Other Organizations	5
2.3. Other Published Materials	5
3. Informative References	5
3.1. SCTE References	6
3.2. Standards from Other Organizations	6
3.3. Other Published Materials	6
4. Compliance Notation	6
5. Abbreviations and Definitions.....	6
5.1. Abbreviations.....	6
5.2. Definitions.....	7
6. Equipment	7
7. Calibration	7
8. Specimen Preparation & Installation	7
9. Velocity Of Propagation Measurement	8
10. Optimum Measurement Frequencies.....	9
11. System Frequency Response	10
12. Chamber Insertion Loss Measurement (α_c)	10
13. Forward Measurement (dB_{FWD}).....	10
14. Reverse Measurement (dB_{REV}).....	11
15. Capacitive Coupling Impedance Calculation	11
16. Transfer Impedance Calculation	13
17. Terminated Triaxial Test Fixture	13
18. Test Report.....	15

List of Figures

Title	Page Number
Figure 1 - Specimen and Window	8
Figure 2 - Vg Equipment Arrangement And Display	9
Figure 3 - Chamber Insertion Loss Measurement	10
Figure 4 - Forward Response Measurement	11
Figure 5 - Reverse Response Measurement.....	11
Figure 6 - Terminated Triaxial Test Fixture	14

1. Introduction

1.1. Executive Summary

Transfer impedance is a measure of shielding effectiveness. This procedure provides instructions for performing the measurement on flexible coaxial drop cables.

1.2. Scope

This procedure is for the measurement of transfer impedance of coaxial drop cables from 5 MHz to the maximum specified frequency using a terminated tri-axial test fixture.

1.3. Benefits

Using this procedure, the transfer impedance of a cable can be characterized and used to determine its shielding effectiveness. Lower transfer impedance means better shielding and less signal ingress or egress.

1.4. Intended Audience

This is a laboratory measurement used primarily by development engineers for the improvement of coaxial drop cable shields.

1.5. Areas for Further Investigation or to be Added in Future Versions

No further investigation is being pursued at this time.

2. Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this document. The editions indicated were valid at the time of subcommittee approval. All documents are subject to revision and, while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

No normative references are applicable.

2.2. Standards from Other Organizations

No normative references are applicable.

2.3. Other Published Materials

No normative references are applicable.

3. Informative References

The following documents might provide valuable information to the reader but are not required when complying with this document.