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Interface Practices Subcommittee

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**Test Procedure for Measuring Shielding Effectiveness
of Coaxial Cable and Connectors Using the GTEM Cell**

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Document Types and Tags

Document Type: Specification

Document Tags:

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

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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.

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1. Introduction

1.1. Executive Summary

The shielding attributes of components in a CATV system are critical to system performance. Ingress and egress issues can have detrimental effects on the overall performance of the system from both regulatory and quality perspectives.

Ingress issues can cause problems with television picture quality, and the effective transfer of data by allowing interfering signals into the system.

Egress issues can allow signals captured in the system to leak out and possibly interfere with wireless communications which utilize the same frequencies as those signals being leaked from the system.

It is the goal of this document to address the coaxial cables and connectors in the system, and how to properly gauge their performance in this critical area.

1.2. Scope

This document details the procedure for measuring the Shielding effectiveness (SE) of coaxial cable and connectors using the gigahertz transverse electromagnetic (GTEM) cell. More particularly, this procedure applies to measuring the S.E. of 75 ohm braided coaxial drop cables and connectors presently used within the broadband communications industry. S.E. measurements can be performed with or without the affixing coaxial connectors removed from the measurement.

1.3. Benefits

This procedure exists in order to provide a standard method of testing between laboratories performing shielding effectiveness tests. When utilized this procedure helps to ensure confidence in results when published.

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

Future revisions of this document may build upon the work started here by increasing the understanding of:

- Variability of data between GTEM Cell systems with varied “uniform field” sizes.
- The affects of location differences between bare wire and shielded samples within the GTEM cell.

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. 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 SCTE references are applicable.

2.2. Standards from Other Organizations

- No normative references are applicable.

2.3. 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.

3.1. SCTE References

- No informative references are applicable.

3.2. Standards from Other Organizations

- **IEC 61000-4-20** 2nd Edition, August 1, 2010. Electromagnetic compatibility (EMC) – Part 4-20: Testing and measurement techniques – Emission and immunity testing in transverse electromagnetic (TEM) waveguides.

3.3. Published Materials

- A GTEM BEST PRACTICE GUIDE – APPLYING IEC 61000-4-20, TO THE USE OF GTEM CELLS. A. Nothofer, M.J. Alexander, National Physical Laboratory, Teddington, UK, D. Bozec, D. Welsh, L. Dawson, L. McCormack, A.C. Marvin, University of York, Heslington, UK(Principal contact: nothofer@ieee.org)
- <http://ieeexplore.ieee.org/search/searchresult.jsp?newsearch=true&queryText=GTEM>
Multiple helpful documents