

SCTE • ISBE[®]

S T A N D A R D S

Data Standards Subcommittee

SCTE STANDARD

SCTE 266 2021

**IoT Recommended Premises Network Infrastructure
Practices for Cable Operators**

NOTICE

The Society of Cable Telecommunications Engineers (SCTE) / International Society of Broadband Experts (ISBE) 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•ISBE 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•ISBE members.

SCTE•ISBE 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•ISBE 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•ISBE web site at <https://scte.org>.

All Rights Reserved

© Society of Cable Telecommunications Engineers, Inc. a subsidiary of CableLabs 2021
140 Philips Road
Exton, PA 19341

Document Types and Tags

Document Type: Operational Practice

Document Tags:

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

Table of Contents

Title	Page Number
Table of Contents	4
1. Introduction	6
1.1. Executive Summary	6
1.2. Scope	6
1.3. Benefits	6
1.4. Intended Audience	6
1.5. Areas for Further Investigation or to be Added in Future Versions	6
2. Normative References	7
2.1. SCTE References	7
2.2. Standards from Other Organizations	7
2.3. Published Materials	7
3. Informative References	7
3.1. SCTE References	7
3.2. Standards from Other Organizations	7
3.3. Published Materials	7
4. Compliance Notation	8
5. Abbreviations and Definitions	8
5.1. Abbreviations	8
5.2. Definitions	10
6. Premises Construction Considerations	10
6.1. Construction Materials	10
6.2. Historical Buildings	11
6.3. Construction Material RF Attenuation	12
6.4. Wireless vs. Wired	12
6.5. General IoT Architecture	13
6.6. Single Family Unit (SFU)	13
6.7. Multiple Dwelling Unit (MDU)	13
6.8. Small to Medium Business (SMB)	13
6.9. Enterprise Business	13
7. Wiring Considerations	14
7.1. Physical Signal Wiring	14
7.2. Physical Power Wiring	14
7.3. Physical Signal and Power Wiring	14
8. Wireless Considerations	15
8.1. Physical Medium	15
8.2. Congestion	15
8.3. Interference	16
9. Power Considerations	16
9.1. AC Power	16
9.2. Power over Ethernet	17
9.3. Batteries	17
9.3.1. Battery Overview	17
9.3.2. Battery Lifetime	18
9.3.3. Limited Environment	18
9.3.4. Battery Operated Sensor Capabilities	19
9.3.5. Recycling	19
9.4. Power over Coax	20
10. Other Considerations	20
10.1. Connectors	20

10.2. Severe Environmental Areas	20
10.3. Pests	20
11. Customer Education	20

List of Figures

Title	Page Number
Figure 1 - Plaster Lath	11
Figure 2 - ZigBee and Wi-Fi Channels	19

List of Tables

Title	Page Number
Table 1 - Attenuations at 2.4 GHz	12

1. Introduction

1.1. Executive Summary

This recommended practices document contains the considerations and recommendations for operators with regards to the premises network infrastructure for residential as well as small to medium businesses.

These are recommendations and should not be considered requirements. The final design is the responsibility of the implementer.

1.2. Scope

The following areas are covered within this document:

1. Premises Construction Considerations
2. Wired Protocol Considerations
3. Wireless Protocol Considerations
4. Power Considerations
5. Installer Best Practices
6. Customer Support Best Practices

1.3. Benefits

This document will be used to provide the following benefits:

- Educate the service providers on the considerations for IoT in various premises
- Develop methods and procedures for installation
- Develop customer support

1.4. Intended Audience

The intended audience are service provider engineering, operations, field service, and care teams.

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

None at this time.

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 normative 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

[Battery] NCTA Methods to Maximize IoT Battery Life,
<https://www.nctatechnicalpapers.com/Paper/2019/2019-methods-to-maximize-iot-battery-life>

3.2. Standards from Other Organizations

[Bicsi] Bicsi Information Technology Installation Methods Manual (7th edition),
<https://www.bicsi.org/education-certification/education-@-bicsi-learning-academy/technical-publications/information-technology-systems-installation-methods>

3.3. Published Materials

No informative references are applicable.