SCTE • ISBE
Society of Cable Telecommunications Engineers
International Society of Broadband Experts

NETWORK OPERATIONS. PERFECTING PERFORMANCE. CONTROLLING COSTS. DRIVING BUSINESS RESULTS!

Essential Knowledge for Cable Professionals™

SCTE • ISBE STANDARDS

NETWORK OPERATIONS

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OUTSTANDING IN STANDARDS

The Network for Networks

With thought-leadership solutions, SCTE•ISBE helps organizations trim costs and optimize performance. The ANSI-accredited SCTE•ISBE Standards Program—through its **Network Operations Subcommittee (NOS)**—develops technical standards and operational practices to improve operations procedures and products for cable networks.

NOS focuses on network testing, monitoring network transmission, preventing network failure, detecting and correcting points of failure, measurements, business continuity, disaster recovery, emergency alerts, service level agreements, and more.

The SCTE•ISBE Standards Program comprises more than 140 organizations, including all the top service providers and more than 1,200 subject-matter experts. Its diverse membership also includes content providers, cable equipment manufacturers, software and application providers, and others.

The SCTE•ISBE Standards Program is the only American National Standards Institute (ANSI) program for the cable telecommunications industry, first accredited by ANSI in 1995. ANSI ensures all stakeholders share in standards development.

NOS Roster

Here are some of the Standards members in the NOS space:

:: ADTRAN
:: Alpha
:: ARRIS
:: Broadcom
:: CableLabs®
:: Charter Communications
:: Cisco
:: Comcast
:: CommScope
:: ComSonics
:: Cox Communications
:: Electroline Equipment
:: EXFO
:: Harmonic
:: Hitachi Consulting
:: IneoQuest
:: Rogers Communications
:: Shaw Communications
:: Viavi Solutions

"Participation in Standards Subcommittees and Working Groups gathers the industry's experts for hot-button topics. Every member of the group is encouraged to provide their point of view. As a provider of test instrumentation, keeping abreast of the technological requirements for the fast-moving cable industry is paramount"

Dick Shimp, Chief of New Technology, ComSonics

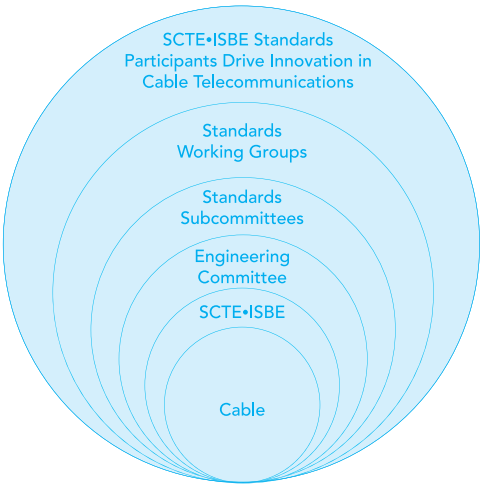
Nascent NOS

The following excerpt from *SCTE•ISBE Interval*, Third Quarter 2012, provides a quick glance back at the Network Operations Subcommittee's beginnings:

"*Following the launch of its latest Standards Subcommittee, the Network Operations Subcommittee (NOS), SCTE•ISBE has formed NOS Working Group 1 to develop test measurement guides and recommended practices for today's advanced broadband networks. The first order of business under Working Group 1 is to investigate the concern of QAM leakage in the 700 MHz band. One of the industry's leading experts on this issue, SCTE•ISBE Hall of Famer Ron Hranac of Cisco, has signed on to oversee the new group.*"

Keeping the Industry Rolling

Standards members and their representatives are fundamental to driving business results for the industry.



SCTE•ISBE Standards Program membership is open to any organization. Find your spot. Be a change agent! Join today at **scte.org/standards**.

NET GAINS

Network Operations Subcommittee Work

The Society's Network Operations Subcommittee is responsible for standards, operational practices, and related documents and information that provide support for the implementation and operation of cable networks. NOS focuses on network testing, measurements, business continuity, disaster recovery, and other topics relevant to the performance and operational management of cable networks.

Subcommittee Working Groups (WG)

WG1 (Measurements): The NOS Measurements Working Group creates standards, operational practices, and technical reports on measurements that can be conducted on live cable systems.

WG2 (Emergency Alert Systems): The NOS Emergency Alert Systems Working Group creates standards and operational practices related to emergency alert systems and provides technical expertise and liaison to other interested parties regarding those systems.

WG3 (Business Continuity Planning/Disaster Recovery (BCP/DR)): The NOS Business Continuity Planning and Disaster Recovery Working Group creates standards and operational practices to prepare for and respond to natural and man-made disasters that may result in widespread service outages. Goals include minimization of mean-time-to-repair and rapid response based upon selected criteria. This working group also manages the cable industry's involvement in the Department of Homeland Security (DHS) SHARES project. SHARES is a program for using high-frequency (HF, or 3 MHz to 30 MHz) radios as a communications method of last resort in the event of a disaster.

WG4 (HFC Management): The NOS HFC Management Working Group (formerly the HFC Management Subcommittee, or HMS) develops standards and operational practices for monitoring hybrid fiber/coax (HFC) networks, including end-to-end multimedia quality of service and management information base (MIB) attributes for headend and outside plant equipment.

WG5 (HFC Readiness for DOCSIS® 3.1): The NOS HFC Readiness for DOCSIS® 3.1 Working Group develops standards and operational practices to prepare HFC networks for higher-capacity signaling schemes, including DOCSIS® 3.1.

WG6 (Wireless): The NOS Wireless Working Group creates standards and operational practices related to the design, installation, operation, and maintenance of wireless access networks supported by cable operators and other service providers. These wireless networks may include cellular, point-to-point, and Wi-Fi technology in commercial, residential, and outdoor environments.

WG7 (Proactive Network Maintenance (PNM)): The NOS Proactive Network Maintenance (PNM) Working Group provides operational practices, guidelines, standards, and training content in collaboration with industry partners' PNM initiatives. The scope of PNM includes HFC, MoCA®, Wi-Fi, and optical access networking technologies. The efforts of this working group are focused on standardizing and expediting new PNM technology to operations and in the field.

Star Standards and Operational Practices in the NOS Galaxy

The NOS Working Groups have published a variety of useful documents for cable operators. For example, have you ever wondered just what is meant by signal leakage field strength? The answer—and more—can be found in **SCTE 221 2015**, *Field Strength & Calculation of LTE User Equipment*. Also related to signal leakage is **SCTE 222 2015**, *Useful Signal Leakage Formulas*, a handy collection of formulas and examples of their use. If you're concerned about signal leakage and ingress interference at higher frequencies, a good resource is **SCTE 209 2015**, *Technical Report: UHF Leakage, Ingress, Direct Pickup*.

Cable operators have been conducting proof-of-performance tests on their networks for decades. **SCTE 204 2014**, *FCC Proof-of-Performance Checklist for Analog and Digital Signals* is a guide to the Federal Communications Commission (FCC)-required technical standards for analog and digital signals.

Are you considering the carriage of DOCSIS® 3.1 signals above 1 GHz? Don't forget that MoCA® signals occupy frequencies in that range, too. **SCTE 235 2017**, *Operational Practice for the Coexistence of DOCSIS® 3.1 Signals and MoCA® Signals in the Home Environment* is a must-read before deploying DOCSIS® 3.1 services above 1 GHz.

Have you thought about what it would take to maintain communications during a major disaster? When infrastructure has been damaged or destroyed by a hurricane, earthquake, or similar incident, two-way radio operation in the 3 MHz to 30 MHz high frequency band may be the only reliable communication alternative. **SCTE 239 2017**, *United States Department of Homeland Security SHARES Overview—Operational Practice for Cable Sector Operators* is an easy-to-follow guide to help cable industry staff understand the requirements for participating in the DHS radio network program known as SHAred RESources, or SHARES for short.

> "Competition for subscribers has never been more intense, and the service provider that wins will be the one that can provide the best customer experience at minimum cost of operations. These conflicting goals can only be met by constantly evaluating our network operational practices and standards and raising the bar on both as new technology and services are to be deployed. I know of no other standards organization that operates as efficiently as SCTE•ISBE."
>
> Daniel Howard, Director, Hitachi Consulting

Finally, a longtime reference for cable operators, *NCTA Recommended Practices for Measurements on Cable Television Systems* is now under the auspices of SCTE•ISBE and is in its fourth edition. *SCTE Measurement Recommended Practices for Cable Systems, Fourth Edition* is available from the Society.

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Get Involved. Define the Future.

Contribute your expertise to one or more of the NOS Working Groups. Familiarize yourself with **scte.org/standards** and get with the program by writing to **standards@scte.org** or calling 610.363.6888.

"I represent Cisco in various standards groups, including SCTE•ISBE. Indeed, Cisco advocates open standards and has played a key role in the development of Internet protocol networking standards and technologies. Cisco has contributed to industry open standards organizations such as SCTE•ISBE. It has been rewarding to leave a few fingerprints on the future of cable."

NOS Chairman Ron Hranac,
Technical Leader, Cisco Systems

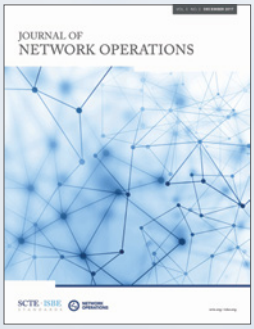
Involvement's Added Value

SCTE•ISBE helps companies build a valuable, industry-visible brand of professionalism and expertise. Being a non-profit entity, SCTE•ISBE re-invests back into its programs and members, compounding and extending the contributions of time and resources it receives.

Raise the Bar With a PAR

Perhaps your company has a project proposal that is an ideal fit for one of the NOS Working Groups. That proposal may spawn a new working group! Ask about submitting a Project Authorization Request (PAR); it could be your entryway into profitable involvement with the industry's only ANSI-accredited standards developer.

Consider This Technical Journal



As a technical thought-leader for the industry, SCTE•ISBE publishes several technical journals, including one titled *Journal of Network Operations*. Share your expertise! Learn more at **scte.org/journals**.

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