tsdsi
India's Telecom SDO

Telecommunications Standards Development Society, India

STUDY GROUP
NETWORKS (SGN)

Telecommunications Standards Development Society, India (TSDSI), is an autonomous 'not for profit' Standards Development Organization for Telecom products and services in India. Our membership comprises stakeholder organizations from all segments of the Telecom Ecosystem in India including Industry, Operators, Service Providers, Manufacturers, R&D and Test Labs, Academia, PSUs and the Government. We are recognised by the Department of Telecommunications, Government of India, as India's Telecom SDO.

The technical activities of TSDSI are carried out through two Study Groups: Study Group – Networks and Study Group – Services and Solutions.

The Study Group - Networks has the following broad domain areas for technical studies & development of standards:

- Wireless communication systems, including overall system architecture, Radio-based access and Mobile core networks, the functional elements constituting these networks and the interfaces/protocols between these networks, Software Defined Network (SDN) and Network function virtualization (NFV) of the access and core networks.
- Backhaul using wireless & wireline, microwave, optical and/or packet-based transport networks and Related SDN & NFV aspects, systems, equipment, optical fibre cables, along with the related control plane, network management, performance monitoring & reporting, synchronization, interfaces, multi-layer optimization techniques and testing aspects.
- Spectrum studies related to the above areas and technical recommendations.
- Interference studies, including co-channel, adjacent channel and inter-system interference.
- Quantum Communications.
- VLC

The group has spearheaded development of following standards

STANDARDS DEVELOPED BY SGN

- Methods and Interface Design for RIS-assisted Communication Systems (TSDSI STD 5003 V1.0.0)
- Generic Relay Architecture for 5G and Beyond (TSDSI STD 5002 V1.0.0) ** Adopted by TEC as a National Standard
- 5Gi Standard (3GPP 5G and 5Gi merged in Release 17 in 2022)
- CPRI Fronthaul Standard (TSDSI STD 5000 V1.0.0)

STANDARDS TRANSPOSED FROM 3GPP

TSDSI transposes updated and new 3GPP specifications (which include IMT-Advanced, 5G, and 5G-Advanced) regularly and publishes the same as TSDSI standards on its website. These standards are also adopted by TEC as national standards.

ADOPTED STANDARDS

- ATSC 3.0 (Versions 2022 and 2024) - Digital TV Broadcasting Standards

SGN IS CURRENTLY WORKING ON DEVELOPMENT OF STANDARDS IN FOLLOWING AREAS

- Transposition of ETSI - DECT-2020 NR Standard as TSDSI Standard
- Positioning standard for 6G using Multi-GNSS including NavIC in India
- Functional Split and Fronthaul Interface in FBS driven C-RAN for 5G and Beyond
- Coreless RAN
- AI Architecture for RAN (SON / RRM)
- New Architecture for 6G Communication Systems
- Update to TS on Methods and Interface Design for RIS-assisted Communication Systems
- Characterization of E-band for 4G/5G Backhaul & Rural Broadband
- 5G Extensions for Broadcast offload

A FEW PUBLISHED TECHNICAL REPORTS

- Solar Panel Based Optical Wireless Communication (TSDSI TR 6050 V1.0.0)
- Implications of Network Slicing on UCaaS (TSDSI TR 6049 V1.0.0)
- Study of Multiple Access for 6G Communication (TSDSI TR 6048 V1.0.0)
- Radiative Near Field Communication with Extreme MIMO (TSDSI TR 6047 V1.0.0)
- System Requirements for NR based Future Railways Mobile Communication System (TSDSI TR 6045 V1.0.0)
- The Role of Edge Intelligence in a 6G Communication Network (TSDSI TR 6038 V1.0.0)
- Characterization of E-band for 4G/5G Backhaul & Rural Broadband (TSDSI TR 6024 V1.0.1)
- Study of 6GHz spectrum for IMT services in India (TSDSI TR 6020 V1.0.0)
- 6G: Use cases, Requirements and Enabling Technologies (TSDSI TR 6017 V1.0.0)
- Visible Light Communication/Li-Fi (TSDSI TR 6016 V1.0.0)

For full list pls click **https://tsdsi.in/tr/**

ENGAGEMENT WITH GLOBAL STANDARDS FORUMS

- **ITU (https://www.itu.int/):**

TSDSI is a sector member of ITU-R & ITU-T and currently participates in its select study groups and focus groups. TSDSI has been contributing regularly to the ITU-R WP 5D towards development of technical reports and recommendations related to IMT-2030 (aka 6G). TSDSI also contributes to the ITU-T SG13, FG AINN etc.

TSDSI is A.5 Certified by ITU-T.

- **3GPP (https://www.3gpp.org/):**

TSDSI is the Organizational Partner of 3GPP, the 3rd Generation Partnership Project that develops specifications for mobile telecommunication networks, in the areas of Radio Access Networks, Architectures, Core Networks and Terminals. TSDSI members have been participating in increasing numbers and making significant contributions towards development of 3GPP Specifications. TSDSI regularly hosts meetings of 3GPP TSGs / WGs in India.

- **oneM2M (https://www.onem2m.org/):**

TSDSI is Partner Type I of oneM2M, a global partnership project that develops IoT/M2M Specifications to enable interoperable, secure and easy-to-deploy applications & services for diverse verticals. oneM2M standardizes a middle layer of common service functions between the application layer and the IoT devices and Connectivity Layer. Currently over 15 common service functions have been defined. TSDSI members have been participating and making significant contributions towards development of the oneM2M Specifications. TSDSI regularly hosts meetings of oneM2M in India. oneM2M Releases2Aand 4, transposed by TSDSI have been submitted to TEC for adoption as National Standards.

*** If you would like to participate/contribute to these forums, please reach out to secretariat@tsdsi.in**

For latest updates on technical activities, please read our newsletters at **https://tsdsi.in/newsletter/**

Jan 2026

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