ITU-T Workshop

The Evolution of Transport and Access Networks to Support IMT 2030/6G

Glenn Parsons, Ericsson Canada

Chair, ITU-T SG15 (EN)

July 7 2024

Workshop Agenda

- Introduction - Glenn Parsons – ITU-T SG15 chair, Ericsson
- GSTR-TN5G - Stephen Shew Q12/15 rapporteur, Ciena
- IMT-2030 - Ven Sampath – ITU-R SG5/WP5A vice-chair, Ericsson
- Presentations from Network Operators
  - Jordan Melzer (Telus)
  - Bhushan Padhiar (AT&T)
  - Kazuhide Nakajima (NTT)
  - Li Han (China Mobile)
  - Ian Horsley (BT)
  - Shen Shikui (China Unicom)
- Panel Discussion
  - Led by Paul Doolan – WP2 chair (Huawei) and Malcolm Betts – WP3 chair (ZTE)

Previous IMT-2020/5G results

- Workshop on the evolution of transport networks to support IMT-2020/5G – October 2017
  - GSTR-TN5G - Transport network support of IMT-2020/5G
- Multiple supplements and recommendations published supporting the IMT-2020 transport network requirements across all working parties

SG15 mandate

SG15 is responsible for the development of standards on:

- optical transport network
- optical access network
- home network and power utility network infrastructures
- equipment
- Gigabit copper transmission
- maintenance
- optical fibers and cables and their related installation
- management
- instrumentation and measurement techniques
- test
- control and management plane technologies

to enable the evolution toward intelligent optical networks.

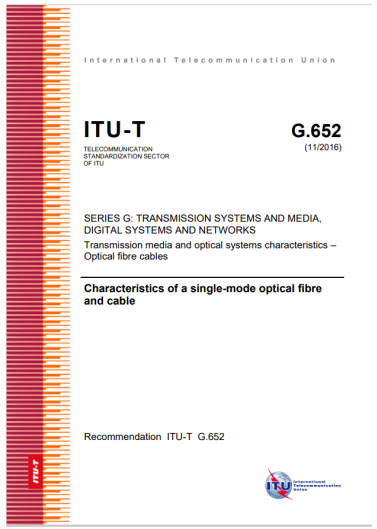
Questions and Working Parties of SG15

	Question Number	Question title
WP1	1/15	Coordination of Access and Home Network Transport Standards
	2/15	Optical systems for fibre access networks
	3/15	Technologies for in-premises networking and related access applications
	4/15	Broadband access over metallic conductors
WP2	5/15	Characteristics and test methods of optical fibres and cables, and installation guidance
	6/15	Characteristics of optical components, subsystems and systems for optical transport networks
	7/15	Connectivity, Operation and Maintenance of optical physical infrastructures
	8/15	Characteristics of optical fibre submarine cable systems
WP3	10/15	Interfaces, interworking, OAM, protection and equipment specifications for packet-based transport networks
	11/15	Signal structures, interfaces, equipment functions, protection and interworking for optical transport networks
	12/15	Transport network architectures
	13/15	Network synchronization and time distribution performance
	14/15	Management and control of transport systems and equipment

WP: Working Party

ITU-T SG 15 deliverables

- Work products:
  - Recommendations
  - Supplements
  - Technical papers and reports
  - Flyers


International Telecommunication Union

ITU-T G.652 (11/2016)

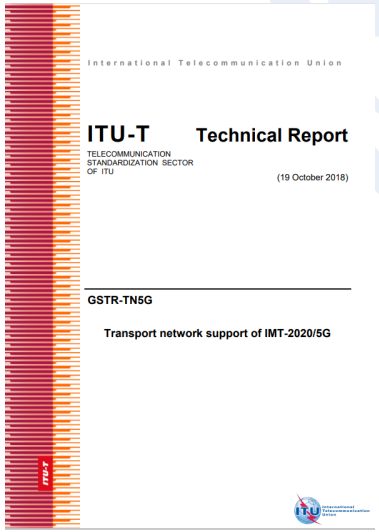
TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Transmission media and optical systems characteristics – Optical fibre cables

Characteristics of a single-mode optical fibre and cable

Recommendation ITU-T G.652


International Telecommunication Union

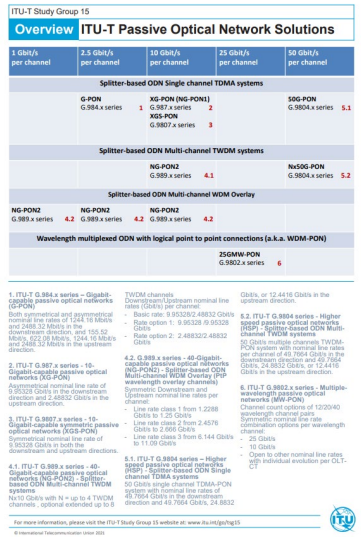
ITU-T **Technical Report**

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

(19 October 2018)

GSTR-TN5G

Transport network support of IMT-2020/5G


ITU-T Study Group 15

Overview ITU-T Passive Optical Network Solutions

1 Gbit/s per channel	2.5 Gbit/s per channel	10 Gbit/s per channel	25 Gbit/s per channel	50 Gbit/s per channel
Splitter-based ODN Single channel TDMA systems				
G-PON G.984.x series 1		XG-PON (NG-PON1) G.987.x series 2 XGS-PON G.9807.x series 3		50G-PON G.9804.x series 5.1
Splitter-based ODN Multi-channel TWDM systems				
		NG-PON2 G.989.x series 4.1		Nx50G-PON G.9804.x series 5.2
Splitter-based ODN Multi-channel WDM Overlay				
NG-PON2 G.989.x series 4.2	NG-PON2 G.989.x series 4.2	NG-PON2 G.989.x series 4.2		
Wavelength multiplexed ODN with logical point to point connections (a.k.a. WDM-PON)				
			25GMW-PON G.9802.x series 6	

- Recommendation series
  - G.600-G.699: Transmission media and optical systems characteristics
  - G.700-G.799: Digital terminal equipments
  - G.800-G.899: Digital networks
  - G.900-G.999: Digital sections and digital line system
  - G.7000-G.7999: Data over Transport – Generic aspects
  - G.8000-G.8999: Packet over Transport aspects
  - G.9000-G.9999: Access networks
  - G supplements: Supplements to ITU-T G-series Recommendations

Workshop objective

- Overview of the status, the emerging requirements and timelines for IMT 2030/6G
  - Identification of differences between the topology of the IMT 2030/6G network and the topology of current 5G network and emerging 5G advanced networks.
  - Estimates of the link capacity and latency requirements.
  - Transport network support of the energy efficiency objectives of IMT2030/6G.
  - Potential benefits of integration of the management of the transport and access network and the IMT2030/6G network.
  - Use of AI/ML to improve the coordination of the transport and access network with the IMT2030/6G network.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