JANUARY-MARCH 2021: VOL-25: ISSUE-2

TEC NEWSLETTER

Telecommunication Engineering Centre

Pages: 10

MESSAGE

From the desk of....

Sr DDG & Head TEC

Dear Readers,

We, as a country, are passing through extremely grim and challenging circumstances ; the pandemic ,in its second wave, has proved to be deadlier ; so many precious lives ..both within DOT and outside... have been lost due to complications arising out of Covid infections. We pray to the Lord Almighty to grant peace to the dear departed souls and strength to the bereaved families to bear the loss of their loved ones .

Yet as the saying goes, the show must go on... We have managed to stitch together the 2nd issue of the TEC Newsletter, since its new avataar; sincerely hope that you will enjoy reading it .

We look forward to your continued support and suggestions to further improve the Newsletter.
Congratulations to my entire team in TEC for their sincere efforts..

TEC wishes good health to all its readers ; stay safe ....stay healthy.

Best Wishes and Warm Regards,

Deepa Tyagi

ISO 9001:2015

CONTENTS

CELLULAR VEHICLE TO ANYTHING (C-V2X)

Many trials on assisted and fully automated driving have been conducted by Volvo, Google, Telstra and Lexus Australia etc. which rely mostly on the sensors embedded into vehicles, e.g. GPS, RADAR, LIDAR and video image processing. While the trials have proven that this is sufficient for basic forms of automated driving, it is widely felt that cellular communications may further enhance traffic efficiency and safety, due to various limitations of onboard sensors, such as:

- Sensors provide a fundamentally local environment support, and cannot "see" beyond other vehicles, obstacles and corners.
- Some sensors can offer decreased performance or even fail completely in adverse weather conditions.
- Distance between the vehicles or vehicle and infrastructure/pedestrian is limited by inherent delay in the processing by the sensor.

In comparison to the limitation placed on Vehicle to Anything (V2X) applications by the use of only sensors embedded into vehicles, use of cellular communications to communicate and exchange intelligence generated by these sensors with a wider group of vehicles, road infrastructure etc. provides the following benefits:

- Wider horizon of knowledge. By sharing onboard sensors' information and additional information from the road infrastructure, using cellular communication, vehicles can base their decisions on more exhaustive information on the surrounding environment.
- Some information may be received much faster over cellular communication than via sensor measurements. For instance, if an autonomous car decides to brake, this information may be transmitted to other cars immediately at the moment of decision making. Obtaining the same information from the LIDAR sensors of following cars will be delayed by the time it takes to build the pressure in the hydraulic brakes, actually slow down and be measured by following cars.
- By means of V2X communications, vehicles can not only share their current position, speed and acceleration, but also their intentions, physical limitations and any other information that can be useful to other road users, which is important in the context of cooperative autonomous driving, as we will see later.
- Even when cellular communication provides the same information as onboard sensors, it provides redundancy that leads to better overall system reliability. For instance, information about a car in front starting emergency breaking received over multiple means increases the overall system robustness as one individual component can always fail.
- Real-time updates on traffic conditions, accidents, road closures, etc. will provide increased efficiencies on traffic as well as enhanced driving experience for applications such as tourism.
- Vehicles can be made aware of the location of Vulnerable Road Users (VRU, e.g. pedestrians, cyclists) present in the road vicinity thanks to their personal cellular devices. This is especially important in case of pedestrians walking into the road from behind a parked vehicle or other obstacle - effectively hindering proper and prompt onboard sensors' reaction.

All the mentioned benefits of V2X communications translate directly into multiple benefits including higher road efficiency as cars can maintain lower distances at higher speeds, increased road safety as cars get more and faster information about their environment and potential hazards, and improved passengers' comfort as more informed car can offer smoother motion without the need to react to certain situations abruptly.

Use of cellular communication, especially LTE, for use in V2X applications was standardized in 3GPP Release 14 first, called LTE-V2X. The air interface for LTE-V2X is based on the 3GPP Rel. 12 sidelink (SL) communication originally specified for proximity services (ProSe), but extended towards the specific characteristics of V2X services, such as UE density, mobility, latency requirements etc. For sidelink communication, LTE-V2X supports UE autonomous resource allocation, where UEs autonomously select resources for V2V message transmission from the resource pools that are either configured by the eNB or pre-configured for out-of-coverage UEs, as well as eNB-scheduled resource allocation. A key aspect in the case of autonomous resource allocation is that UEs perform measurements of S-RSRP(Sidelink Reference Signal Received Power) and Sidelink Received Signal Strength Indicator (S-RSSI) and refrain from transmitting if the channel appears to be in use. This effectively reduces the collision rate and provides substantially better system performance, especially in high UE density scenarios.

LTE-V2X also supports improved Semi-Persistent Scheduling (SPS) for periodically generated messages such as Coordinated Awareness Messages (CAM) and Decentralized Environmental Notification (DEMN) messages. It is achieved by allowing UEs to report UE Assistance Information (UAI) that describes message generation period, timing offset, priority message size, etc. and hence to align the SPS with the actual V2X traffic pattern. LTE-V2X also enables the broadcast of V2X data from the infrastructure via single cell point-to-multipoint (SC-PTM) or multimedia broadcast single frequency network (MBSFN), where shorter modification/repetition period(s) of MBMS Control Channel (MCCH) and Single Cell Multicast Control Channel (SC-MCCH), and shorter MCH scheduling period(s) have been introduced to achieve low latency. Finally, it allows to handle sidelink control and data transmission in the same transmit time interval (TTI) to reduce the latency.

Support for V2X has been evolved with each 3GPP Release, and the set of enhancements carried out in 3GPP technologies to support V2X applications is called Cellular V2X (C-V2X). The significant additions in each 3GPP Release is shown in the Table below along with comparison with IEEE 802.11p, which is an alternative wireless technology for V2X applications.

Apart from the important enhancements to the LTE Side Link air interface, to support V2X applications elements have been introduced into the core network in 3GPP Release 14 like the V2X control function,V2X Application Server (AS). These will deal with the configuration and provisioning of the V2X sessions, authentication and authorization, applicationspecific activities and these are discussed in detail in 3GPP TS 23.285. Protocols have also been defined for communication between the device and the V2X control function and between the device and the V2X AS in 3GPP TS 24.386.

Key properties of wireless technologies for V2X

IEEE 802.11p	LTE-V2X (Rel. 14)	3GPP V2X Phase 2 (Rel. 15)	5G-V2X potential
• Enhanced distributed channel access (EDCA) based on carrier sense multiple access (CSMA) • 1 control and 6 service channels, each 10 MHz wide	• Option of autonomous and eNB-scheduled transmission • Optimized SPS support • Improved high mobility support • Latency-reduced SC-PTM and MBSFN	• Carrier aggregation, higher-order modulation • Further latency optimization • Mode 3 / mode 4 interworking • Increased reliability through transmit diversity	• High-data rate support • New frequency bands • Ultra-high precision localization • Better multi-service integration through network slicing

- Contributed by:
Mobile Technology (MT) Division

Security & Privacy in IoMT

The number of devices connected to the Internet is growing, enhancing the exponential expansion of the IoT thereby increasing the challenge to overcome the issue of Security and Privacy. With the growing use of medical things/devices using IoT/M2M, Security & Privacy in the medical domain poses a serious issue that continues to grow. Due to the sensitivity and criticality of the data pertaining to the healthcare domain, it is must to ensure Security & Privacy of the Internet of medical things (IoMT). This study paper aims to increase the concept of Security & Privacy awareness among IoMT stakeholders by enabling them to identify and quantify potential IoMT risks.

According to a recent study (Palandrani, 2020); more than 90% of all IoT device transmission is unencrypted, implying that 57% of IoT devices are vulnerable to attacks exposing confidential information. These cyber-attacks are not only detrimental to the system but may also pose a danger to human life. In IoMT, any cyber-attack may have a drastic impact, risking the life of patients. The rapid evolution and adoption of IoMT, especially in pandemic times, may raise further security concerns, thus preserving the privacy of critical and sensitive medical data becomes more challenging. Numerous attacks, threats, and risks can affect different layers of the IoMT architecture. Hence, an IoMT ecosystem must adhere to strict security and privacy specifications. Approaches such as cryptographic or non-cryptographic algorithms for efficient intrusion detection and prevention are needed.

IoMT most common cyber/security attacks:

The following stakeholders are affected by the IoMT Security attacks/ threats:

- IoMT Application Service Provider.
- Manufacturer of IoMT Devices and/or Gateways
- IoMT Device/Gateway Management entity
- IoMT Service Provider
- Network Operator
- User/Health care system/individuals

The security attack and attack vector of IoMT are depicted in table 1

Attack	Attack Vector
DoS Attack	Cloud services, Databases
Injection Attack (Including SQL injection)	Databases
Data Leakage (Sniffing, eavesdropping, traffic analysis, Brute attack)	Messages, Network Hardware
Device Safety	Middleware

Attack and Vectors of IoMT (Table 1), Source: IoMT amid COVID-19 pandemic: Application, architecture, technology, and security, Journal of Network and Computer Applications 174 (2021) 102886, Elsevier.

IoMT Privacy, its requirements and methods:

The privacy requirements of the IoMT at the time of pandemic is a crucial issue regarding the contact tracing , movement control and data sharing among different agencies of government. The data, sensors, cloud, network, end user, health care system are vital for the privacy of the patients/end user. The privacy data may include personal data, health data, insurance data, financial details regarding the payment of medical bills etc. The following IoMT privacy methods may be used for the prevention and protection of privacy data:

Privacy focus Area	Security Requirements	Privacy Methods
Data	Confidentiality	Two party secure computation protocol sw-sss, Biometric authentication using public and private keys
Sensors	Resilience to internal attack	Node Registration, Biometric based authentication,
Cloud	Trust and emerging attacks	Medical block chain
Network	Resistance to MIMA	Privacy preserving strategies of block chain based IoT system.
End User	Device/User Authentication Patient Anonymity	Node registration, Privacy-Preserving Mutual Authentication
Health care system/ Government	Access control Key Management Trust Management	Biometric authentication Public key crypto-system, Privacy-Preserving Mutual Authentication

IoMT Privacy and its requirements (Table 2), Source: (same as Table1)

-Contributed by
Smart Network (SN) division

TEC CONTRIBUTIONS TO ITU

1· ITU-T SG-20 RGM Q2/20: Contribution on Y.SRC "Requirements for deployment of smart services in rural communities" was presented by DDG(IoT) on 23rd & 25th Feb 2021. Contribution with some editorial changes has been accepted as the part of the main document under development.

2. ITU-T SG 13: DDG (MT), Director (MT), ADG(MT) participated and presented contribution C-1208 proposing initiation of a new work item "Trust Registry for the Devices and Applications" in the ITU-T SG 13 meeting held from 1st to 12th March 2021. The work item has been placed in living list currently. This work item was initiated in NWG 13 and finalised in the NWG 13 meeting held on 10-02-2021.

NWG MEETINGS

1. **NWG-20** meeting was organised by IoT division for finalizing contributions for ITU-T SG-20 meeting, Feb 2021, was held on 16thFeb 2021. It was chaired by DDG (IoT) and attended by the NWG-20 members.

2. **NWG-13** meeting was organised on 10.02.2021 by MT division to finalise contributions to the ITU-T SG 13 meeting from 1st - 12th Mach 2021.

3. **NWG-15** meeting held on 23.02.2021. A contribution on "**Fibre Optic Network Terminal Box (L.font)**" presented by Director (FA) was discussed and approved by NWG-15 and was uploaded on ITU-T SG-15 for discussion and presentation in upcoming ITU-T SG-15 meeting.

4. Standardisation division coordinated a meeting of all the heads of National Working Groups (NWG) in the chamber of DDG (R) on 23-2-2021 to steer the activities on all the NWGs headed by TEC.

DSS - Dynamic spectrum sharing

Dynamic spectrum sharing (DSS) provides a very useful migration path from LTE to NR by allowing LTE and NR to share the same carrier.

DSS allows carriers to share the same channel between both 4G and 5G users simultaneously. The term "dynamic" in DSS refers to the ability to allocate resources to each technology based on demand. This requires that DSS is traffic-aware, and able to respond to changes. The performance of DSS will depend in large part on how frequently traffic demand changes and the granularity of the resource allocations.

DSS was included in 3GPP Rel-15 and further enhanced in 3GPP Rel-16.

Operators globally have started trialling and incorporating the feature into their networks like AT&T, DT and Vodafone Germany etc.

ISO/IEC

DDG(IoT) chaired the LITD-27 meeting organized by BIS on 1st Feb 2021, attended by several members from TEC, in which the contributions for next ISO/IEC JTC1 SC41 meeting were discussed.

DO YOU KNOW?

- Key telecom developments in 2021: Spectrum auction, wireless broadband and launch of 5G pilot trials
- Foldables smartphones to reach 18 million units globally by 2022

STANDARDIZATION

NEW STANDARDS RELEASED

Essential Requirements (ERs) :

1. IP Multimedia Conferencing Equipment
   (No: TEC34622104) (IT Division)

Standard for GR/IR issued:

1. 40/80 Channel DWDM system with Channel bit rate of 100G/200G for Core/Metro Network Applications
   (No: TEC86070:2021) (GR_Tx division)
2. Interchange of Ethernet Signals between different Network
   (No.:TEC89122:2021 (IR_Tx division)
3. Flexible Optical Fibre Cable (For Indoor applications)
   (No.: TEC85110:2021) (GR_Tx division)
4. Optical fibre cable for FTTH application (G.657A Fibre)
   (No.: TEC85160:2021) (GR_Tx division)
5. ADSS Optical Fibre Cable for laying along Power line alignments (For Long Span)
   (No.: TEC 85230:2021) (GR_Tx division)
6. Wi-Fi Access Point
   (No: TEC 38020:2021) (GR_Radio division)

Test Guide (TSTP) issued:

1. EMF measurement from Base station Antenna
   (No.: TEC 13019:2021) (Radio Division)
2. 40/80 Channel DWDM system with Channel bit rate of 100G/200G for Core/Metro Network Applications
   (No.: TEC 86071:2021) (Tx division)
3. Interchange of Ethernet Signals between different Network
   (No.: TEC89123:2021) (Tx division)
4. Flexible Optical Fibre Cable (For Indoor applications)
   (No.: TEC85111:2021) (Tx division)
5. Optical fibre cable for FTTH application (G.657A Fibre)
   (No.: TEC85161:2021) (Tx division)
6. ADSS Optical Fibre Cable for laying along Power line alignments (For Long Span)
   (No.: TEC 85231:2021) (Tx division)
7. Provisional TSTP of standard GR on Network Protocol Analyser
   (No.: TEC61031:2021) (NGS division)
8. Precision Timing Protocol Grand Master (PTP GM)
   (No: TEC49171:2021) (IT division)

DEVELOPING THE INDIAN AI STACK

1. To carry forward the standardization activities in AI technology, the AI Standardization committee has **reconstituted all 5 Working Groups** (WGs) in **Jan 2021** by including the members from various stakeholders like industry, academia, R&D organizations, industry organizations.
2. A **combined meeting** of all the Working Groups (WGS), was held on **18 February 2021** as online meeting, to discuss the future course of action/ activities being taken by all WGs.
3. These Working Groups will prepare standards/ suggest/ give recommendations to AI Committee for finalization of standards in AI technology and **Indian AI Stack**.

for updates visit: www.tec.gov.in

IPV6 READY LOGO

TS Division has reviewed 2 examination result under IPv6 Ready logo program and IPv6 ready logo certificate has been awarded to both devices.

TRAI DATA

Highlights of Telecom Subscription Data as on 31st January, 2021

Particulars	Wireless	Total (Wireless+ Wireline)
Total Telephone Subscribers (Million)	**1159.42**	**1179.49**
Net Addition in January, 2021 (Million)	5.64	5.67
Monthly Growth Rate	0.49%	0.48%
Urban Telephone Subscribers (Million)	**633.27**	**651.59**
Net Addition in January, 2021 (Million)	3.60	3.69
Monthly Growth Rate	0.57%	0.57%
Rural Telephone Subscribers (Million)	**526.15**	**527.90**
Net Addition in January, 2021 (Million)	2.04	1.98
Monthly Growth Rate	0.39%	0.38%
Overall Tele-density(%)	**85.24%**	**86.72%**
Urban Tele-density(%)	134.98%	138.89%
Rural Tele-density(%)	59.05%	59.25%
Share of Urban Subscribers	54.62%	55.24%
Share of Rural Subscribers	45.38%	44.76%

Source: Corrigendum (dated 31st march, 2021) to Press release no. 16/2021 dated 17th March, 2021

DO YOU KNOW?

- 92% of the world's currency is digital.
- It costs 38 trillion dollars to create oxygen for 6 months for all human beings on earth.

MTCTE ACTIVITIES

(MANDATORY TESTING AND CERTIFICATION OF TELECOMMUNICATION EQUIPMENT)

UPDATES

- A virtual MATCOF meeting was held on 5th January 2021 to discuss the proposed modifications in ERs of IoT division and related annexures. Around 80 stakeholders participated in the meeting. ERs (expect tracking device) have been finalized and submitted to TC division after approval, for uploading on MTCTE portal.
- A virtual MATCOF meeting was held to discuss the draft ER on Antennas.
- Appeals Officer changed to DDG (TS) for Handling of Appeals received from Appellant w.r.t. MTCTE certification.
- MTCTE Project Estimate finalized and put up for approval of DoT, HQ.
- One certificate issued to M/s Netlink ICT Pvt. Ltd. out of 17 MTCTE Phase-2 certificates which were kept in abeyance, released on 02.02.2021.
- Inputs sent to core divisions for creation of new ERs for new identified telecom products as per inputs from OEMs, Department of Commerce, MTCTE helpdesk etc.

CERTIFICATES ISSUED:

- Total **Companies registered** - **120**
- Total A**pplications Registered** till Dec-20 - **180**
- **Certificates issued** in Q3 (Oct to Dec-20) - **6**
- Total **Certificates issued till Dec-20** -**117**
  (**62** under GCS and **55** under SCS scheme)

ABOUT MTCTE

The Indian Telegraph (Amendment) Rules, 2017, provides that every telecom equipment must undergo mandatory testing and certification before its sell or import. The detailed procedure for Mandatory Testing and Certification of Telecom Equipment (MTCTE) is given in MTCTE procedure document. The testing is to be carried out by TEC designated labs and based upon their test/reports; certificate shall be issued by TEC.

For MTCTE updates visit: https://www.mtcte.tec.gov.in/

CAB DESIGNATION ISSUED BY TEC

NEW CERTIFICATE ISSUED:

1. Electronics Test and Development Centre (ETDC), Pune
2. Atharva Laboratories Pvt. Ltd
3. Alpha Test House

CERTIFICATE RENEWED:

1. Electronics Test and Development Centre (ETDC), Bengaluru
2. React Lab, Bengaluru

CERTIFICATE ENHANCED:

1. Compliance International Pvt. Ltd, Delhi
2. Sunren Telecom Lab, Mumbai

Total Number of TEC Designated CABs is 61 [Safety Testing: 48, EMI/ EMC Testing: 28, Technical Parameters Testing: 07, Other (SAR): 03].

VOLUNTARY TESTING SCHEME

TECHNOLOGY APPROVALS ISSUED

1.Product- Nah-Sanchar PABX
Developed- UIET, Panjab University, Chandigarh (UT)

2.Product - XGS-PON system
Developed - C-DOT, Delhi

TYPE APPROVAL CERTIFICATES ISSUED

1. Product- IP PABX with Media Gateway;
   Manufacturer- M/s Coral Telecom Limited, Solan, H.P.
2. Product- HDPE Telecom ducts 40/33 mm dia;
   Manufacturer- M/s Mangalam Pipes Pvt Ltd, Bangaluru
3. Product- STM-16 Synchronous Multiplexer;
   Manufacturer- M/s Tejas Networks Ltd., Bangalore

In the current financial year (from 01.04.2020 till date), 12 certificates have been issued

NGN CONTROL LAB

The Acceptance Testing of NGN Control Lab has been completed and AT Report of the Validation Committee got approved on 23.03.2021.
The NGN Control Lab is now ready for commissioning.

STUDY PAPERS RELEASED BY TEC

1. "AI in Spectrum Management"

The paper aims to highlight the beneficial role AI can play over traditional spectrum management methodologies. The need of efficient spectrum management using novel techniques such as AI so that the spectrum demands from new services like IoT can be efficiently catered has also been touched upon

Published in March, 2021 (Radio Division)
Link: https://www.tec.gov.in/pdf/Studypaper/AI_in_Spectrum_management.pdf

2. "5G Core Network"

This study paper covers the 5G Core network architecture as per 3GPP Release 15. It discusses the design principles, the specific features like service based architecture, network slicing, mobile edge computing etc. It also covers the features added to the 5G Core network in 3GPP Release 16 and those planned for 3GPP Release 17.

Published in March , 2021 (MT Division)
Link: https://www.tec.gov.in/study-papers

3."Requirements of Conformance Testing against various RFCs "

This study paper emphasis on RFC 2119 published by IETF, which describe certain key words for use in RFCs to Indicate Requirement levels. The purpose of RFC 2119 is that Key words for use in RFCs to Indicate Requirement Levels (RFC 2119) are defined carefully in order to limit, as much as possible, misinterpretation of protocol specifications.

Published in March,2021 (IT Division)
Link: https://www.tec.gov.in/study-papers

4."AI in Automotive "

The purpose of this study paper is to bring into the limelight, the Artificial Intelligence in the automotive industry. AI is a broad term using which artificial things can be made intelligent. AI provides intelligence to automotives to achieve more and more ease in driving.

Published in March,2021 (SN Division)
Link:https://www.tec.gov.in/pdf/Studypaper/AI%20in%20Automotive.pdf

5."Security & Privacy in IoMT "

This study paper aims to increase the concept of Security & Privacy awareness among IoMT stakeholders by enabling them to identify and quantify potential IoMT risks.

Published in March,2021 (SN Division)
Link: https://www.tec.gov.in/study-papers

TRAINING

ADG(TS) attended a 1 week online training on **Advance Cyber Security** under **Cyber Nucleus program of MEITY**.

TALKS & MEETINGS

- Ms. Deepa Tyagi, Sr. DDG TEC delivered a keynote address on "Future of Internet of Things" and Mr. Sushil Kumar, DDG(IoT) expressed his views in a panel discussion on "Consumer IoT Security Guidelines", in an international conference on Consumer IoT Security - Stakeholders consultation on 22 Jan 2021, organised by India Future Foundation in association with the office of National Cyber Security coordinator.
- An online meeting under the chairmanship of Sr. DDG, TEC with TIC (Testing, Inspection &Certification) Council held on 08.02.2021 .
- DDG(IoT) delivered a keynote address on "CCTV Challenges & Opportunities in quality and Productivity, in a webinar on Udyog Manthan" in an event organized by Quality Council of India (QCI), DPIIT on 11thFeb 2021.
- Ms. Deepa Tyagi, Sr. DDG TEC delivered a keynote address in a virtual conference on "Device ecosystem for 5G spectrum bands". Sushil Kumar, DDG(IoT) also expressed his views in a panel discussion. This conference was jointly organized by COAI, GSA and Qualcomm on 19thFeb 2021.
- Director (IT) gave a presentation in webinar organized by TERI and UNESCO on 05 March 2021 on "Fighting Fake News: Misinformation and Cyber security issues ".
- A virtual meeting of Consultative Committee (CC) and Telecom Standards Advisory Committee(TSAC) was arranged on 10thMarch 2021 to discuss oneM2M Release 3 specifications, transposed by TSDSI and submitted to TEC for ratification / adoption. A detailed presentation was also made by TSDSI members.
- Discussion sessions were arranged with CCTV manufacturers on 12th and 19th March 2021 to discuss the Essential Requirements of CCTV cameras. Specifications for CCTV camera have been accommodated/ finalized in ER of Smart Camera.
- A brainstorming session was arranged on 16th March 2021 with the experts of global standardization bodies ETSI, oneM2M and TTA related to Interoperability & Conformance testing for IoT ecosystem based on oneM2M specifications. Sr. DDG TEC and other concerned officers from TEC, C-DOT and industry members participated in this discussion.
- A presentation was made by C-DoT on "Architecture and framework of PM- WANI" in TEC on 25.03.2021.
- DDG(IoT) expressed his views in a panel discussion on Role of India's National Trust Centre in safeguarding IoT ecosystem, in a conference on 'Securing India from emerging threat vectors', 30th March 2021, organized by India Future Foundation in association with the office of National Cyber Security coordinator.
- Radio division Participated in these two external meetings:
  - APEX committee meeting at DoT for satellite communication application cases
  - Inter departmental team meeting hosted at ISRO, Bengaluru (attended online).

HR ACTIVITIES

TEC WELCOMES ON JOINING

- Sh. Vinod Kumar, Dir TC-III
- Sh. Maheshanand, Dir Finance
- Sh. Deepak Pathak, Dir Standardization
- Sh. Souvick Kumar Das, Dir ER Kolkata

TEC CONGRATULATES ON PROMOTION

- Sh. S.P.Singh got promoted as Regular SAG and transferred to BSNL
- Sh. Premjeet Lal got promoted as Regular SAG and transferred to BSNL

TEC BIDS FAREWELL ON TRANSFER

- Sh. Sunit Kumar Tomar relieved for further reporting to NTIPRIT Ghaziabad
- Sh. Dilip Kumar Rathor(Dir Fin) relieved for further reporting to Jaipur
- Sh. Harshit Modi relieved for further reporting to Bhopal LSA

TEC BIDS FAREWELL ON SUPERANNUATION

- Sh. Ram Sanwar, Staff Karyachalak retired on 31st March, 2021

Bereavement

- Smt. Maya Saxena, Ex DDG(R)
- Sh. D P De, Ex Sr. DDG, TEC
- Sh. Joginder, MTS

- Smt. Maya Saxena, BE (E&C) from IIT Roorkee (erstwhile Univ of Roorkee) batch 1968, an expert in OFC and radio communications, retired from TEC as DDG(R). With a heavy heart, it is informed that she left us for her heavenly abode on 30th April, 2021 due to Covid related complications.

- Sh. DP De, Ex Sr DDG, TEC was BE (E&C) from IIT Roorkee 1979 batch. He retired as Advisor, NE LSA. He died on 4th May, 2021 due to Covid related complications.

WOMEN'S DAY CELEBRATION

Women's day was celebrated in TEC on 8th March 2021 under the chairmanship and guidance of Mrs. Deepa Tyagi, Sr. DDG TEC. Smt. Maya Saxena was invited as Chief Guest and was felicitated on the occasion of Women's day. The program was attended by Lady officers/officials of TEC. Lectures from guest speakers were also organised through web meeting.

हिंदी गतिविधियाँ

- हिन्दी की तिमाही रिपोर्ट दूरसंचार और राजभाषा विभाग को भेजी गयी
- राजभाषा कार्यान्वयन की तिमाही बैठक का आयोजन किया
- हिन्दी कार्यशाला का आयोजन किया
- आरटीआई की तिमाही रिपोर्ट आरसी डिविजन को भेजी गयी

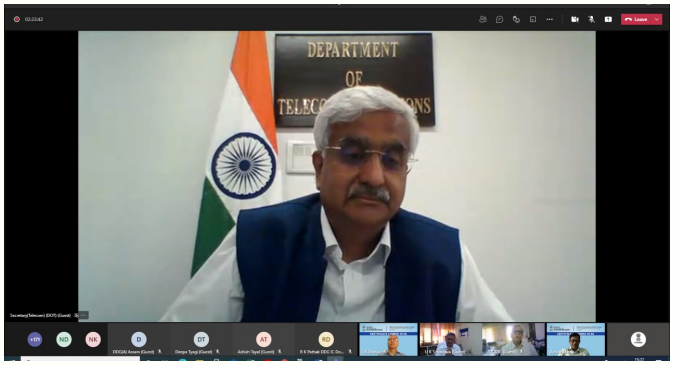
DO YOU KNOW ?

India Telemedicine Markets, 2020-2025 - As per the report, the industries are leveraging the COVID-19 Phase to Ramp-Up Telemedicine Infrastructure, Especially in States with High Growth Opportunity.

5G certification course by NTIPRIT

Telecom Secretary Shri Anshu Prakash inaugurates an online certification course on 5G technology launched by NTIPRIT on 9th March 2021. This is first of its kind 12 week Course to train and certify Government Officers in 5G technology

The inaugural session was also addressed by Sh B. K. Jog, Member (S), DCC and Sh. U.K. Srivastava, Sr. DDG & Head of NTIPRIT and other senior government officials



TAFCOP

Telecom Analytics for Fraud Management and Consumer Protection (TAFCOP) system to be created at License Service Area level

5G Hackathon

Shri Anshu Prakash, Secretary (T) & Chairman DCC announced the top 100 use cases of 5G Hackathon - India's first such initiative at this scale on 12th January 2021. DoT received 1024 applications out which 100 were selected for Phase 2.

ITU-WSIS Forum

Shri Sanjay Dhotre Hon'ble MoSC highlighted policy initiatives taken by India on Bridging Digital Divides during address to ITU- World Summit on Information Society (WSIS) 2021 on 22-03-2021.

AI/ML and Big Data are being increasingly used in customer engagement and enhancing customer experience through Hyper localization and Hyper personalization; contextual ChatBot etc.

DoT has involved NLU to study and update existing acts (Indian Telegraph Act, 1885 and Indian Wireless Telegraphy Act, 1933) so as to include new technologies.

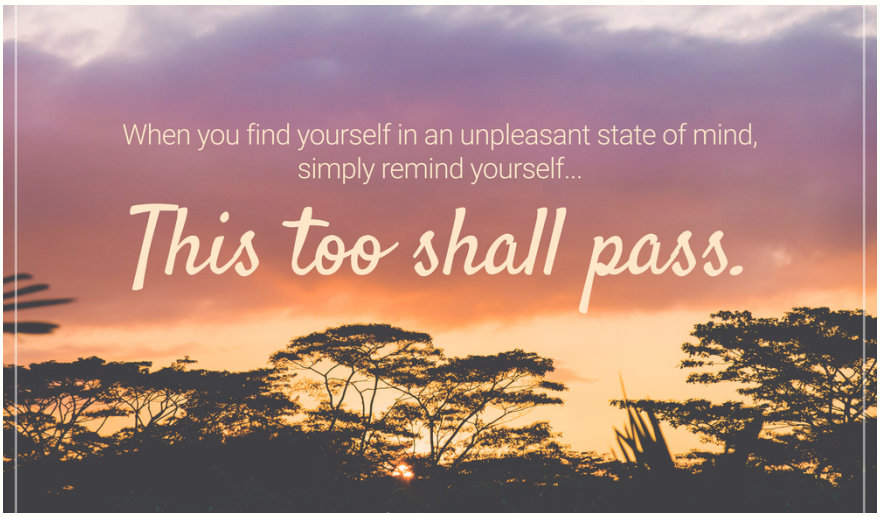
ABOUT TEC

- Telecommunication Engineering Centre (TEC) is an ISO 9001:2015 Organization. It plays a very important role in the telecom ecosystem of India. It is responsible for the development of technological standards in the form of Generic Requirement, Interface Requirement for Voluntary Testing and Essential Requirements (ERs) for Mandatory Testing of Telecom equipment in India.

- TEC has Core Technical Divisions which carry out the activities of formulation of technical requirements in harmony with international standards, for telecom equipment, interfaces, and services. This activity involves the participation of telecom service provisioning organizations, equipment manufacturers, industry associations, academia, government institutions, international and national standardization bodies, and other stakeholders.

- TEC provides technical support to DOT HQ, WPC, USOF, TRAI and other Government ministries.

- TEC coordinates and participates in the meetings of standards development organizations, viz., International Telecommunication Union (ITU), Asia Pacific Telecommunity, World Radiocommunication Conference (WRC), 3rd Generation Partnership Project (3GPP), European Telecommunications Standards Institute (ETSI), IEEE etc. TEC also interacts with stakeholders and associations, viz., COAI, AUSPI, ISPAI, SAI, TEMA, CMAI, FICCI, CII, etc.



Suggestions/ feedback are welcome and may be sent at-

Email: ddgs.tec@gov.in

Website: www.tec.gov.in

K.L Bhawan, Janpath, New Dlehi

Contributors:

1. **Sh Rajeev Kumar Tyagi, DDG (NGS)**
2. **Ms Divya Sharma, ADG (T)**
3. **Ms Ranjana Sivaram, ADG (MT)**
4. **Rajmohan Meena, ADG (FN)**
5. **Ms Bhoomika Gaur, ADET (R)**
6. **Sh Vimal Kumar, AD (NR)**