

44th Working Party 5D Summary

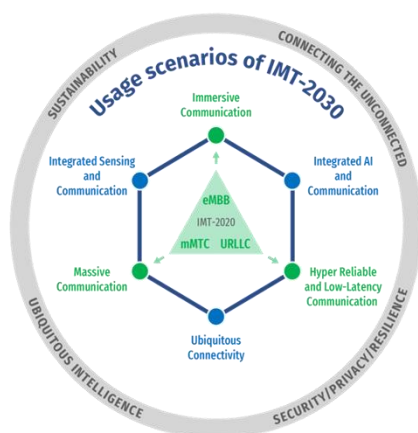
44th meeting of the ITU-R WP 5D was held in Geneva from June 12, 2023 to June 22, 2023. This meeting successfully completed the following ITU Reports and Recommendations

1. Recommendation on 6G framework
2. New Report on IMT for Industries
3. New Report on IMT for Multimedia
4. Updated Recommendation on Frequency arrangements for 5G.(M.1036)
5. Updated Recommendations on LTE out of Band emissions

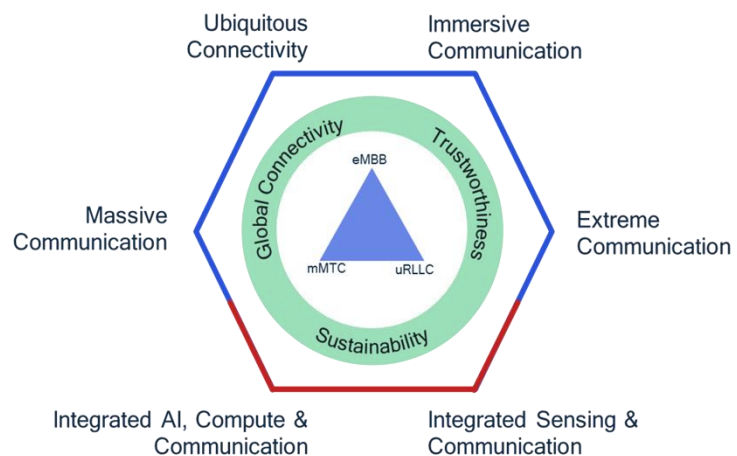
The main achievement of this meeting was the finalization of the new 6G vision which is contained in the draft new Recommendation ITU-R M.IMT.FRAMEWORK FOR 2030 AND BEYOND . This new Recommendation provides framework and overall objectives of the future development of IMT for 2030 and beyond. Indian administration and IAFI played a critical role in getting the ubiquitous connectivity being accepted as a key usage scenario. This new framework recommendation will now become a foundation document for 6G work across the different research groups and in external standards development organizations like the 3GPP. One of the key elements agreed among the different administrations was on the inclusion of elements of interworking across different access services. It was agreed that the user experience could be enhanced when such users are able to access services anytime and anywhere. Specifically, ITU is now intending to develop interfaces that would allow interworking of terrestrial 6G network with non-terrestrial technologies (such as satellites- like the ones being launched by One-web and Telesat, etc.). Similar interfaces will be developed for other access technologies, including Wi-Fi. It is important to note that in March, India released its Bharat 6G Vision document which has been recommended opening up more spectrum across low-mid and mmWave bands. It has also laid emphasis on terahertz (THz) research as well as, has focused on industry and academic research & development

It is worth noting that the final framework as approved by the ITU (A hexagon with a triangle and a circle) is very much similar to the one proposed by the India, as may be seen from the diagram below:

6G Diagram Approved by ITU



6G Diagram proposed by India (IAFI+5GIF)



WP5D also approved a new report on New Report on IMT for Industries under the SWG chaired by me. The report deals with private cellular networks – also referred to as NPNs (Non-Public Networks) in 3GPP terminology – have rapidly gained popularity in recent years due to privacy, security, reliability and performance advantages over public mobile networks and competing wireless technologies as well as their potential to replace hardwired connections with non-obstructive wireless links. With the 3GPP-led standardization of features such as MCX (Mission-Critical PTT, Video & Data), URLLC (Ultra-Reliable, Low-Latency Communications), TSC (Time-Sensitive Communications), SNPns (Standalone NPNs), PNI-NPNs (Public Network-Integrated NPNs) and network slicing, private networks based on LTE and 5G technologies have gained recognition as an all-inclusive connectivity platform for critical communications, Industry 4.0 and enterprise transformation-related applications. Traditionally, these sectors have been dominated by LMR (Land Mobile Radio), Wi-Fi, industrial Ethernet, fiber and other disparate networks.

The liberalization of spectrum for Private 4G/5G in many countries is a critical factor that is accelerating the adoption of private LTE and 5G networks. National regulators across the globe have released or are in the process of granting access to shared and local area licensed spectrum. Examples include but are not limited to the three-tiered CBRS (Citizens Broadband Radio Service) spectrum sharing scheme in the United States, Canada's planned NCL (Non-Competitive Local) licensing framework, United Kingdom's shared and local access licensing model, Germany's 3.7-3.8 GHz and 28 GHz licenses for 5G campus networks, France's vertical spectrum and sub-letting arrangements, Netherlands' geographically restricted mid-band spectrum assignments, Finland's 2.3 GHz and 26 GHz licenses for local 4G/5G networks, Sweden's 3.7 GHz and 26 GHz permits, Norway's regulation of local networks in the 3.8-4.2 GHz band, Poland's spectrum assignment for local government units and enterprises, Bahrain's private 5G network licenses, Japan's 4.6-4.9 GHz and 28 GHz local 5G network licenses, South Korea's e-Um 5G allocations in the 4.7 GHz and 28 GHz bands, Taiwan's provision of 4.8-4.9 GHz spectrum for private 5G networks, Hong Kong's LWBS (Localized Wireless Broadband System) licenses, Australia's apparatus licensing approach, India's CNPN (Captive Non-Public Network) leasing framework and Brazil's SLP (Private Limited Service) licenses. Even China – where mobile operators have been at the forefront of initial private 5G installations – has started allocating private 5G spectrum licenses directly to end user organizations. Vast swaths of globally and regionally harmonized license-exempt spectrum are also available worldwide that can be used for the operation of unlicensed LTE and 5G NR-U equipment for private networks. In addition, dedicated national spectrum in sub-1 GHz and higher frequencies has been allocated for specific critical communications-related applications in many countries.

LTE and 5G-based private cellular networks come in many different shapes and sizes, including isolated end-to-end NPNs in industrial and enterprise settings, local RAN equipment for targeted cellular coverage, dedicated on-premise core network functions, virtual sliced private networks, secure MVNO (Mobile Virtual Network Operator) platforms for critical communications, and wide area networks for application scenarios such as PPDR (Public Protection & Disaster Relief) broadband, smart utility grids, railway communications and A2G (Air-to-Ground) connectivity. Despite the somewhat differing views on market definition, one thing is clear – private LTE and 5G networks are continuing their upward trajectory with deployments targeting a multitude of use cases across various industries, ranging from localized wireless systems for dedicated connectivity in factories, warehouses, mines, power plants, substations, offshore wind farms, oil and gas facilities, construction sites, maritime ports, airports, hospitals, office buildings and university campuses to regional and nationwide sub-1 GHz private wireless broadband networks for utilities,

The new ITU report comes with details of various sectors that are using Private 4G/5G.