Radiocommunication Study Groups

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IAFI[1]

DRAFT SUMMARY OF REPORT ITU-R M.[IMT.ABOVE 100GHZ] FOR SUB-WORKING GROUP IMT-2030

1 Introduction

During the 43rd meeting of Working Party 5D, A short summary from the Working Document towards a Preliminary Draft New Report ITU-R M.[IMT.Above 100GHz] was extracted for providing necessary material to the Sub-Working Group IMT-2030 for the proposed IMT-2030 Framework Recommendation. However, as the Report ITU-R M.[IMT.Above 100GHz] could be finalised during the 44th meeting, this summary material also could not be finalized.

2 Proposal

In this document, A short summary has been proposed as a summary of studies in the bands above 100 GHz, independent of the finalization of the proposed new ITU-R Report. The draft summary is enclosed as Attachment 1 to this document and is based on the Annex 5.6 to Working Party 5D Chairman's Report of the 43rd meeting.

The proposed document should be finalized by SWG Radio Aspects and sent to SWG IMT-2030 for incorporating into the draft Recommendation on IMT-2030 framework.

Attachment: 1

[1] ITU-APT FOUNDATION OF INDIA (https://itu-apt.org)

Annex 5.6 to Working Party 5D Chairman's Report

DRAFT MATERIAL REGRADING FEASIBILITY OF IMT ABOVE 100 GHZ FOR SUB-WORKING GROUP IMT-2030

2 Trends of IMT for 2030 and beyond

2.4 Studies on technical feasibility of IMT in bands above 100 GHz

The development of IMT for 2030 and beyond is expected to enable new use cases and applications with extremely high data rate and low latency, which will benefit from large contiguous bandwidth spectrum resource with around tens of GHz. This suggests the need to consider spectrum in higher frequency ranges above 92 GHz as a complementary of the lower bands.

A series of propagation measurement activities have been carried out by academia and industry aiming at investigating the propagation characteristics in these bands under several different environments (such as outdoor urban and indoor office). A summary of the measurement activities collected for these bands indicates that the bands of interest for IMT are concentrated in and around 100, 140-160, 220-240, and 300 GHz bands. ITU-R is developing a report on the characteristics of IMT technologies in bands above 92 GHz, including coverage, link budget, mobility, impact of bandwidth and needed capabilities to support new use cases of IMT.

Further studies on the enabling antenna and semiconductor technologies, material technologies including reconfigurable intelligent surfaces, MIMO and beamforming technologies are needed to overcome major challenges of operating in bands above 92 GHz such as limited transmission power, the obstructed propagation environment due to high propagation losses and blockage.

Given the large bandwidth and high attenuation characteristics of bands above 92 GHz, some typical use cases include indoor/outdoor hot spots, integrated sensing and communication, super-sidelink, flexible wireless backhaul and fronthaul, etc.

The radio wave propagation assessment, measurements, technology development and prototyping done so far indicate that utilizing the bands above 92 GHz is feasible for some IMT deployment scenarios and could be considered for the development of IMT for 2030 and beyond.