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| Japan and Singapore |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
| Considerations on a WRC-19 agenda item regarding IMT identification in the frequency bands above 6 GHz |
| Agenda item 10 |

Introduction

While WRC-15 agenda item 1.1 deals with identification of the frequency bands below 6 GHz for IMT, there would be a need to explore wideband contiguous spectrum in higher frequency bands (e.g., above 6 GHz) in order to support various usage scenarios envisioned for IMT in 2020 and beyond.

Considering these backgrounds, several regional groups are proposing to establish a new agenda item for WRC-19 regarding IMT identification in the higher frequency bands. As a member of Asia-Pacific Telecommunity (APT), while Japan and Singapore support the APT common proposal (ACP) on this new agenda item, Japan and Singapore still consider that additional other frequency ranges, which were proposed to the final meeting of APT Conference Preparatory Group for WRC‑15 (APG-15) but not included in the ACP, should also be studied under this new agenda item considering several aspects. This contribution provides our considerations on these aspects described in Section 2 below and our proposals on the work of conference for establishment of this agenda item described in Section 3 below.

Discussion

In the final meeting of APG-15, it was extensively discussed which frequency ranges should be included for study under the new agenda item regarding IMT identification in the frequency bands above 6 GHz.

Japan and Singapore still believe that some of these excluded frequency ranges are also worth to be studied under this new agenda item considering the following aspects described below.

1) IMT development, implementation, and deployment in the frequency bands above 6 GHz

The proposed frequency ranges for study in the ACP are 25.25-25.5 GHz, 31.8-33.4 GHz, 39‑47 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz, 66-76 GHz, and 81-86 GHz, and most of them are selected from the frequency ranges above 30 GHz.

In addition to these frequency ranges in the ACP, Japan and Singapore consider that it is essential to include more frequency ranges between 6 -30 GHz for study under the new agenda item as well taking into account various use cases and associated requirements for IMT in the bands above 6 GHz, which will be further elaborated in the next study cycle. One of the challenges of IMT in the bands above 6 GHz for outdoor access are to overcome expected difficulties in propagation conditions associated with higher pathloss of the bands above 6 GHz relative to traditional cellular bands. In particular, using the frequency bands above around 30 GHz would face difficulties to provide indoor coverage by base stations located outdoors, which would be essential for cost-effective and successful IMT deployment. Technical background of this aspect can be found in the analysis in Section 5.2 of Report ITU-R M.2376, “Technical feasibility of IMT in bands above 6 GHz”.

2) Treatment of proposals from regional groups and individual administration

Japan and Singapore consider that the frequency ranges proposed by the regional groups should be included in the scope of the study under the new agenda item. Furthermore, the frequency ranges supported by some administrations, which are not covered by the regional groups’ proposals, should also be included in the scope of the study.

Japan and Singapore also believe that excluding some of the frequency ranges before considering results of sharing/compatibility studies, in particular, excluding the frequency bands that are already allocated to the mobile service on a primary basis, is not appropriate and should be avoided in the discussion of the selection of the frequency ranges/bands. Rather than excluding some of the frequency ranges immediately, we should conduct sharing and compatibility studies between IMT and incumbent applications in the next study cycle, and then evaluate potential candidate frequency bands for IMT considering the results of sharing and compatibility studies, current & future usage in the time-frame of 2020 and beyond, etc. In the sharing and compatibility studies, it is also essential to use envisaged new characteristics and deployment scenarios of IMT, which may be different from conventional IMT below 6 GHz, and those characteristics of incumbent applications based on the available latest information, and any prejudgement based on the existing studies should be avoided.

Proposals

Based on the discussion in Section 2 above, Japan and Singapore propose to adopt the following principles when discussing the new agenda item for WRC-19 regarding IMT identification in the frequency bands above 6 GHz:

– The frequency ranges proposed by the regional groups should be included in the scope of the study under the new agenda item. Furthermore, the frequency ranges supported by some administrations, which are not covered by the regional groups’ proposals, should also be included in the scope of the study.

– Excluding some of the frequency ranges, before considering the results of sharing/compatibility studies, in particular, excluding the frequency bands that are already allocated to the mobile service on a primary basis, is not appropriate and should be avoided;

– It is essential to include frequency ranges between 6-30 GHz for study under this new agenda item as various use cases and associated requirements for IMT in the bands above 6 GHz will be further elaborated in the next study cycle. In other words, frequency ranges to be studied under this agenda item should be carefully selected considering the balance between lower range (6-30 GHz) and middle & higher ranges (30-100 GHz).

Considering the above aspects, in addition to the frequency ranges indicated in the ACP, Japan and Singapore also propose to include the following frequency ranges for study under this agenda item:

– 6-8.5 GHz, 10-10.5 GHz, 14.4-15.35 GHz, 25.5-29.5 GHz, and 37-39 GHz.

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