# 4th Annual Asia Pacific Spectrum Management Conference

***(Supporting ITU Asia-Pacific Regional Initiative on Spectrum Management)***

**17 - 19 July 2018**

**Bangkok, Thailand**

**Draft Agenda**

**DAY 1**

**Session 1: Opening Ceremony and Keynote Presentations**

09:00 – 09:30 Opening Ceremony

09:30 – 09:45 Keynote Presentation and Introduction

**Session 2: Spectrum for 4G – ensuring the required bandwidth is made available in a timely and efficient manner**

09:45 – 11:10 **Session 2i: Assignment of key 4G capacity bands**

Countries across the Asia-Pacific region are faced with the challenge of identifying and assigning the required spectrum in higher frequency ‘capacity’ bands. Regulators are looking to do this through a mixture of new spectrum assignment, alongside reframing and defragmentation in existing bands. This session will look at the progress that has been made in making available the new bands that have been identified (for example

1800MHz, 2.3GHz, 2.6GHz) and at where delays and issues are being seen here. It will also look at the role that refarming and the re-design of bandplans can play in the solution. It will aim to map out the future shape of the key high-frequency ‘capacity’ band, and at how sufficient spectrum in these bands can be made available across the region to meet the growing demands of citizens everywhere.

* *What are the key bands that have been identified to deliver the required capacity for 4G, and what is the status on their allocation across the region?*
* *What can be done to ensure this important spectrum is made available in the most timely and efficient way possible? What issues are being faced by regulators to bring this important spectrum to market?*
* *What good examples of 4G spectrum being brought into the market quickly and efficiently have been seen? What role can refarming and defragmentation of existing mobile bands play in helping to find a solution?*
* *What different approaches to refarming are being seen across the region and in which bands? Should efforts be focused on migrating out current 2G or 3G services, and what are the pros and cons of both options?*

09:45 – 13:10 **Session 2ii: Delivering the required spectrum in 4G coverage bands**

The 700MHz band is seen as one of the key 4G coverage bands, to help deliver broadband services to rural areas. With the 2020 deadline for digital switchover in the band approaching, many countries are facing delays with the transition process and still working through plans and schedules for making this important spectrum available for mobile. This session will look at the current situation relating to the release of the band across the region, and at the likely timeframes ahead. It will look at some of the examples of countries that have completed the transition process successfully and some of the challenges faced by those who are still working towards this goal. Ultimately, it will look at what the impact of any delays in the allocation of the 700MHz band to mobile will be, and the best way forward to ensure that it is allocated in a timely and efficient manner.

* *What progress has been seen in countries across the Asia-Pacific region with regards to the digital switchover and the award of the 700MHz band for mobile?*
* *What challenges are being faced by those countries who are behind in the process and what can be done to ensure that key deadlines are met?*
* *What countries can provide positive examples of the transition process and of the 700MHz spectrum being made available quickly and efficiently? What lessons can be learnt from these?*
* *Are the concerns regarding delays of the allocation of the 700MHZ bands justified, and what implications could it have if this band is not allocated in a timely and efficient manner?*

13:10 – 14:15 **Lunch**

**Session 3: Spectrum for IoT and Industry 4.0**

The Internet of Things (IoT) is a hugely important and rapidly growing market that is already starting to transform the digital economy. One particular area in which real change is being seen is with ‘industry 4.0’, and the automation of traditional manufacturing industries to create smart factories. This session will look at the development in these key technologies in countries across the Asia-Pacific region, and the spectrum requirements that they have. It will then look at solutions that are available to meet these and at providing the connectivity to ensure the region stays at the forefront of this fast evolving and disruptive technology.

* *What recent developments in IoT and industry 4.0 have been seen across Asia-Pacific countries?*
* *What spectrum is powering IoT technologies and industry 4.0 currently, and how are the connectivity requirements of these key technologies set to change over the next few years?*
* *How can the industry grade connectivity and ‘ultra reliability’ required by the ‘future factories’ of tomorrow best be delivered? What mix of licensed, unlicensed and shared spectrum will be required?*
* *What frequencies and solutions provide the best options to power the next generation of IoT connectivity and ensure that the Asia-Pacific region continues to lead the way in this key area?*
* *How can it be ensured that a ‘future-proof’ solution is found? What mix of 4G, 5G, WiFi, LPWAN technologies and other technologies will provide a solution?*

14:15 – 15:35 **Session 3i: Country perspectives**

A look at IoT development in countries across the Asia-Pacific region and beyond, and at national approaches and at the spectrum requirements that are needed to ensure that the potential of these key technologies are maximized.

15:35 – 16:00  **Afternoon Coffee**

16:00 – 17:00 **Session 3ii: Industry and Technology Perspectives: Connecting the factories of the future**

The growth of automation and connected robots, sensors and other systems in the manufacturing and industrial sectors has led to a need for ultra reliable ‘industrial’ grade internet. This session will look at the best way to deliver this, at the mix of licenced, unlicensed and shared spectrum that will be required; and at the types of network that should be deployed and by whom. Can traditional mobile operators provide all these connectivity requirements or is there an argument to allow industry stakeholders to build/own/operate their own locally self-controlled wireless networks?

17:00 – 17:30 **Interactive Room Wide Discussion**

17:30 **End of day 1**

**DAY 2**

**Session 4: Meeting the 5G spectrum requirements of today and of the future**

To fully maximize the potential of 5G, a mix of spectrum in the low, mid and high range frequency bands is required. Countries in Asia are leading the way when it comes to the roll-out and commercial launch of 5G networks. However, in order for this momentum to be continued, it is vital that the required spectrum is made available in a timely and efficient fashion. The next few sessions will look at the current situation in the region, the key spectrum requirements that are needed to power the 5G revolution, and the best way forward in ensuring that they are met.

09:00 – 11:00 **Session 4i: Setting the scene: Powering the 5G vision – spectrum and technology requirements**

This session will set the scene by looking at the 5G vision both in Asia and in other regions, and at the different approaches that are being seen. It will look at the potential for positive impact that 5G has in different areas of society, and at the mix of spectrum and different technologies that will be required to deliver this.

* *What goals and visions have been set for 5G both in Asia and around the world?*
* *What approaches are being seen in order to achieve these?*
* *What concrete trials and demonstrations of 5G technologies have been seen in Asia-Pacific to date, and what have they shown us?*
* *What commercialization plans have been made across the region?*
* *What positive changes can 5G deliver for consumers, businesses and society in general, and how can these be achieved?*
* *What are the spectrum requirements that are necessary in order for this vision to be fully realised, and how can it be ensured that the necessary bandwidth is made available in a timely and efficient fashion?*

10:40 – 11:00 **Break**

11:00 – 12:15 **Session 4ii: 5G connectivity in the millimetre bands – Releasing the required bandwidth to meet the deadlines and targets for 5G roll-out**

With countries in the Asia-Pacific region having set ambitious targets of 5G roll-out by 2019 or 2020, there is a need for mmWave spectrum to be made available as soon as possible in order for these to be met - before the discussions at WRC will allow. This session will look at the urgent work that needs to be done now to make mmWave spectrum available, and at the national frameworks for spectrum release in these bands that are emerging in order to meet the 2019 and 2020 roll-out targets.

* *What work is being done outside of the ITU discussions to prepare for the release of mmWave spectrum and what national are starting to emerge?*
* *What timeframes are being proposed, and are these sufficient in order to ensure that Asia-Pacific retains its position as truly leading in the roll-out of 5G services?*
* *When is it required that spectrum is made available across these bands in order to meet the ambitious roll-out targets that are being set?*
* *What mmWave bands are being considered to help facilitate the initial roll-out of 5G services? What role will frequencies such as 37GHz, 50GHz and 60-70GHz play?*
* *What obstacles and challenges need to be overcome before the spectrum in these bands can be made available?*

12:15 – 12:45  **Interactive Room Wide Discussion**

12:45 – 13:45 **Lunch**

**13:45 – 15:55 Session 4iii: Balancing the requirements of all users in the mid range C-Band frequencies**

The 3.3GHz to 5GHz ‘C-Band’ is seen as an ideal band for the roll-out of 5G services because it offers a compromise between the wide coverage of lower frequencies and higher capacity of millimetre waves. Around the world, it is being looked at as a pioneer launch band for 5G services; and in the Asia-Pacific region, Australia, China, Hong Kong, New Zealand and Singapore are amongst those countries, which plan to reallocate at least some of the lower C-Band spectrum (3.4 GHz – 3.7GHz) to mobile broadband. The C-Band is also however hugely important for the satellite industry who use it to provide downlink spectrum for services, and particularly given the widespread use of satellite services in the Asia-Pacific region, any mandate to relocate or start to co-locate services with mobile could be highly disruptive and expensive. This session will look at the future shape of the C- Band, the stakeholders using it, and its mix of allocation on a licensed and an unlicensed basis. It will look at the way forward to maximize the value of this important bandwidth and to find a solution that is in the best interest of all users.

* *What is the current situation regarding the allocation of different chunks of mid- range C-Band spectrum in Asia-Pacific countries, and what plans are there to reallocate spectrum in the band for 5G?*
* *How can it be ensured that any disruption and costs to current incumbent users in the band are minimized?*
* *To what extent is co-existence between mobile and satellite in the band a possibility, and how could this best work?*
* *What role could guard bands and other regulatory tools help to alleviate the risk for interference?*
* *How can regulators best allocate spectrum in the C-Band to develop a band-plan that maximizes its value and potential and offers the large contiguous blocks of spectrum that are most suitable for 5G delivery?*
* *To what extent is co-ordination of plans on a regional level being seen, and is there a need for more work in this area?*
* *What should be the role of unlicensed spectrum in the C-Band?*

14:55 – 15:30 **Interactive Room Wide Discussion**

15:30 – 15:50 **Afternoon Refreshments**

15:50 – 16:30 **Session 5: Ensuring the success of WRC-19 – regional plans and preparations**

Preparation for WRC-19 is well underway in Asia-Pacific and all around the world. This session will provide the opportunity to hear from key representatives from within the region and elsewhere in the world who are responsible for the preparatory work that is being done. The aim will be on continuing discussions that focus on the best way forward to ensure a coordinated approach in the build-up to WRC, and one that works for the benefits of Asia-Pacific stakeholders and citizens everywhere.

* *What are the key areas for discussion in the Asia-Pacific region?*
* *Where are there early signs of agreement and where is there disagreement (both between countries within the region; and inter-regionally between APT and other regional bodies around the world)?*
* *What are the likely discussions around the mmWave spectrum bands going to be, and which bands are being considered? How are the decisions of some countries to focus on the 28GHz band (which is not being considered at WRC-19) affect this?*
* *How can the Asian delegation ensure that it maintains a strong and influential voice during the WRC-19* discussions?

16:30 – 17:15 **Fireside Chat with session 5 speakers: How can we best ensure the success of WRC-19, and what role do individual stakeholders need to play?**

17:15 **End of day 2**

**DAY 3**

**Session 6: Spectrum auctions and pricing - Tools and techniques to ensure a successful outcome**

There has been a number of spectrum auctions and awards in Asia Pacific over the last few years, with varying degrees of success. Whilst some were successful in allocating bandwidth and bringing in new entrants, a number of others have not achieved their objectives, with lots remaining unsold and reserves not being met. This session will look back at some of these auctions that have taken place, and discuss the auction design used and the factors that influence their success. It will look at some of the more successful auctions that have taken place in recent times, and discuss how regulators moving forward can look to set licensing conditions and reserve prices that give auctions the best chance of success and help to develop a competitive and innovative market.

* *What awards have been seen in the Asia-Pacific region over the past 12 months, and how have prices and license conditions been set?*
* *What impact has this had on the auction results and what have been the issues in those auctions that have not been successful?*
* *For regulators, who are expected to realize reasonable revenues, what is the appropriate approach for setting reserve prices?*
* *To what extent should countries be looking to follow international best practice when designing auctions, and where should national differences be taken into account?*

09:00 – 10:40 **Session 6i: A look at recent auction and spectrum awards in Asia**

10:40 – 11:00 **Morning Coffee**

11:00 – 12:30 **Session 6ii: Spectrum pricing and award strategy to ensure a competitive and innovative market**

11:45 – 12:30 **Interactive Room Wide Discussion**

12:30 – 13:30 **Lunch**

13:30 – 14:45 **Session 7: Delivering the digital economy - A focus on national connectivity plans**

For countries looking to fully achieve the economic and social benefits of the digital economy, a comprehensive and coherent national plan is an important first step. These plans help to provide the vision, structure and coordination that is necessary to deliver timely and affordable connectivity and broadband access to citizens and businesses everywhere. This session will look at best practices in the delivery of these plans and the setting of related targets and goals; as well as looking at the important role that spectrum needs to play in order to ensure their successful implementation.

* *Why are national plans important for the delivery of the digital infrastructure, and what can the benefits of these plans be?*
* *How can regulators and Governments ensure that the targets that are being set are ambitious but realistic?*
* *What considerations need to be taken into account to ensure the delivery of a successful national plan, and how can it be ensured that plans both identify key strategies and ensure that benefits are realized for the benefit of all?*
* *What role should vertical industry representatives be playing in the formulation of these plans?*
* *How can Governments best look to deliver technology-neutral and flexible spectrum policies that promote broadband investment and facilities-based competition?*
* *What good examples of national plans for the delivery of digital economies have been seen across the region and are there aspects of best practice that are transferrable for other countries currently looking to set plans?*

14:45 – 15:15 **Interactive Room Wide Discussion**

15:15 – 15:30 **Summing up by ITU representative**

15:30 **End of Conference**