The 6th Asia Pacific Spectrum Management Conference

2 & 3 September 2020
Jakarta, Indonesia

Organised by Forum Global and hosted by the Ministry of Communication and Informatics (MCI), Indonesia, the 6th Asia-Pacific Spectrum Management Conference will take place in Indonesia from 2 – 3 September 2020.

The Conference will provide a meeting point for spectrum stakeholders to come together and discuss topical issues relating to the management and coordination of spectrum policy across the region.

Sessions will include a focus on issues such as WRC-19 & 23, 5G rollout and key spectrum bands (in low, mid and high ranges), spectrum licensing and national roadmaps, rural connectivity, spectrum for verticals and much more.

DAY 1

08:30 – 09:00 **Morning Coffee and Registration**

09:00 – 09:40 **Opening Ceremony and keynote presentations**

Session 1: Leading the way - 5G visions and early experiences across the APAC region
All around the world, commercial 5G deployment is now underway, and countries in Asia are very much leading the way. In countries across the region, we are seeing examples of 5G networks being launched and the first 5G handsets starting to become available. This session will look at the progress that has been made with the launch of 5G across Asia and elsewhere, and at what needs to be done to ensure that the region takes advantage of the leading position on 5G deployment that it currently enjoys.

- What progress has been seen in countries across the APAC region when it comes to roll-out of 5G? Which countries are being seen as early leaders?
- In examples of roll-out that have been seen, to what extent have early versions of the technology met expectations?
- Beyond the first movers / early leaders, what plans are being made for rollout of 5G in other countries across the region?
- What are the key spectrum bands that are being seen for 5G at this early stage, and what bands offer the best options to deliver the required connectivity in the longer term?
- How can the APAC region continue to innovate and push forward to ensure that it remains ahead of the game both with the continued roll-out of 5G, and also with the development of future technologies (Beyond 5G or 6G)?

09:40 – 09:50 **Delivering the 5G future in Asia – Progress made and challenges ahead**

09:50 – 10:05 **Case Study – 5G rollout in Korea**

10:05 – 10:20 **Case Study – 5G rollout in China**

10:20 – 10:35 **Case Study – Plans for 5G rollout in Thailand**

10:35 – 10:55 **Panel Discussion**

10:55 – 11:15 **Morning Coffee**

Session 2: Next steps following WRC-19 – implementation and looking ahead
WRC-19 took place in Egypt at the end of 2019, delivering key decisions and directions on spectrum policy for the next four years and beyond. Now that the dust has settled, the general consensus from most stakeholders seems to be that overall a fair balance was reached. The next steps are now of course for the outcomes and decisions to be implemented, both in APAC and other regions around the world. This session will look at the work that needs to be done to do this and ensure that the additional bandwidth for IMT is made available as quickly and efficiently as possible. And with attention already starting to switch to WRC-23, it will then move on to look at the key agenda and items expected to feature there.

- What new bands were identified for IMT at WRC-19 and what are now the next steps in order to ensure they are made available as quickly and efficiently as possible?
- With 5G set to be delivered through a mix of technology and a 'network-of-networks', to what extent will the decisions at WRC19 help to meet the future requirements of key technologies such as satellite (including ESIMs), Wi-Fi and HAPS alongside those of mobile?
- Are there any lessons from WRC-19 that can be taken to improve the way in which WRC-23 and future conferences are co-ordinated?
- What are the key agenda items and bands to be discussed at WRC-23, and what are the next steps in the build-up to this?
- With much of WRC-19 focussing on 5G 'capacity' bands, what now needs to be done to ensure that sufficient spectrum is available to deliver 5G coverage?
- The 6GHz band is set to be one of the key topics for discussion in the lead-up to WRC-23. Where does the balance between licenced and licence-exempt use in this band?
- Will we still be talking about 'spectrum for 5G' when we reach 2023, or will the focus have switched to B5G or 6G?

11:15 – 11:25 **Presentation**

11:25 – 11:35 **Presentation**

11:35 – 11:45 **Presentation**

11:45 – 11:55 **Presentation**

11:55 – 12:05 **Presentation**

12:05 – 12:45 **Q&A and Interactive Discussion**

12:45 – 13:45 **Lunch**

Session 3: Effective spectrum pricing and licence assignment in the APAC region
A number of 4G and 5G spectrum auctions and awards have taken place in Asia Pacific over the last few years, with varying degrees of success. Whilst some have been 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. Looking at examples of different approaches to spectrum awards that have been seen in the region, this session will examine where the best practice lies in designing the award process and also in setting fair spectrum prices. It will look at how regulators can balance the promotion of efficient spectrum use with that of revenue generation from spectrum awards.

- What recent awards have been seen across the APAC region and elsewhere? What results have been seen and what prices have been achieved?
- What impact has 5G had on trends seen in spectrum prices?
- What factors influence the price of spectrum, and how can regulators ensure that they are setting reserve prices at a realistic level?
- What can the impact be on mobile operators and on consumers if spectrum prices are set at artificially inflated levels?
- To what extent should regulators rely on the market to determine spectrum prices and ensure true market value?

13:45 – 14:00 **Presentation: 5G spectrum pricing, make or break the 5G momentum?**

14:00 – 14:15 **Presentation**

14:15 – 14:30 **Case Study: Spectrum pricing and award strategies in Hong Kong**

14:30 – 14:45 **Q&A and Discussion**

Session 4: A focus on mid-band frequencies – meeting the connectivity requirements of all users

Session 4i: To what extent is co-existence of 5G and satellite services possible in the lower C-band?

- To what extent is trouble free co-existence between mobile and satellite in the C-band possible?
- What approaches are being seen across Asia and the rest of the world to deliver this and release part of the band for mobile use?
- What factors should regulators be taking into account when looking to deliver this, and how can it be ensured that the needs of satellite and other incumbent users are looked after?
- What size guard band is necessary to ensure protection against interference? What other technological and regulatory solutions can also help facilitate trouble free co-existence?

- How can neighbouring countries work together to ensure that appropriate cross-border agreements are in place to protect border regions when different timings for the reallocation of spectrum are seen?
- How close are we to achieving globally harmonised spectrum allocations for 5G in the C-band, and what benefits could this bring if it was delivered?

14:45 – 15:00 **Mobile Perspective**

15:00 – 15:15 **Satellite Perspective**

15:15 - 15:30 **Presentation**

15:30 – 15:45 **Presentation**

15:45 – 16:00 **Presentation**

16:00 – 16:30 **Q&A and Discussion**

16:30 – 16:50 **Afternoon Coffee**

Session 4ii: 2.3GHz, 2.6GHz and beyond – exploring the wider mid-band ecosystem
Beyond the bands that have been discussed in the last sessions, there are other options in the mid bands that that are being considered as options for both 4G and 5G spectrum. The 2.6GHz band for example has good propagation characteristics and in addition has already been awarded to China Mobile, guaranteeing a hardware ecosystem. This session will look at the 2.6GHz band as well as other bands such as 2.3GHz and 4.4-5Ghz bands and explore their potential to provide alterative options for IMT services.

- To what extent can other bands such as the 2.3GHz, 2.6GHz and 4.4-5GHz bands offer an additional option to provide mid band spectrum for IMT?
- How much spectrum mid-band is actually needed in order to both extend the development of 4G with wide bandwidth, and provide available spectrum for early 5G implementation in APAC region?
- How advanced is the development of the ecosystem in these bands, and what national plans are being seen across Asia?
- What other users are present in these bands, and how can it be ensured that the needs of all stakeholders are met?
- What challenges would be faced when looking to rollout IMT services in these bands and how can they be overcome?
- To what extent can these bands help to extend the deployment of both 4G and 5G services and help MNOs move away from legacy 2G and 3G technologies?

16:50 – 17:05 **Presentation: Mobile perspective**

17:05 – 17:20 **The allocation of the 2.6GHz band in Thailand**

17:20 – 17:35 **Presentation – Country Case Study**

17:35 – 18:00 **Q&A and Discussion**

DAY 2

Session 5: A focus on low frequencies – the emerging shape of spectrum usage in the sub-1 GHz band

Over the last 12 months, a number of countries across the APAC region have made some significant progress in assigning the 700MHz band – countries such as China, India, Malaysia, Thailand and Vietnam, have all now either re-allocated spectrum in the band to mobile or have plans to do so in 2020. When making the spectrum available, each country faces a number of decisions on how exactly to do this. This session will look at some of these questions in more detail, as well as more generally looking at the overall state of play of the spectrum landscape below 1-GHz band and the shape of the bandplan that is emerging and the various users in it.

- What is the current state of play with regards to the re-assignment of the 700MHz band across the region, and where can we expect to be by the end of 2020?
- What are the relative pros and cons of making the frequencies available on a paired (FDD) or an unpaired (TDD) basis?
- Should regulators be looking at making the spectrum in the band initially available for 4G and then transition to 5G at a later stage, or is there an argument to allocate it for 5G use straight away?
- When working on the digital switchover, should countries be solely considering the 700MHz band, or also looking at including the use of 600MHz for mobile broadband in their spectrum roadmaps?
- How are the emergence of new digital broadcasting standards such as ATS3.0 shaping the future of the broadcast sector and its spectrum requirements? How can these be incorporated into the long-term UHF bandplan?

09:00 – 09:15 **Presentation**

09:15 – 09:30 **Presentation**

09:30 – 09:45 **Presentation**

09:45 – 10:00 **Presentation**

10:00 – 10:20 **Q&A and Discussion**

Thinking Point: Coverage from the sky – innovations in delivering connectivity to 'hard to reach' areas

The satellite sector has always been key in delivering connectivity to rural and outlying areas, complementing mobile and other technologies to increase overall coverage areas. Recent and forthcoming innovations within the sector mean that this is truer today than it ever has been before. From the most remote, rural locations to ships and aircraft, this session will look at the potential that technologies such as LEO satellites and high altitude platforms offer to provide coverage in areas that it has not been possible before, and the challenges and opportunities ahead.

10:20 – 10:35 **Presentation**

10:35 – 10:50 **Presentation**

10:50 – 11:05 **Presentation**

11:05 – 11:20 **Q&A and Discussion**

11:20 – 11:35 **Morning Coffee**

Session 6: A focus on high frequencies - Building the post-WRC mmWave landscape
As we saw in the last session, one of the key focusses at WRC-19 was to identify additional spectrum for IMT in the mmWave bands. This session will now take the opportunity to look at this emerging mmWave ecosystem in a little more detail.

- Which mmWave frequencies are emerging as the key bands for 5G, and how are these being used by stakeholders both in Asia and around the rest of the world?
- What early results are being seen in countries that have started using mmWave spectrum for 5G (for example in the US), and have these started to change any opinions on the potential that mmWave bands offer?
- What is the true demand for mmWave spectrum? Will the increasing availability of mid-band spectrum (and with more in the pipeline for the near future) take the pressure off and mean there is less of a focus on mmWave for IMT?
- How much mmWave spectrum was allocated for IMT at WRC-19 and what will this do to the future mmWave landscape? To what extent has this changed plans within mmWave bands both in Asia and elsewhere around the world?
- Does the approach that has been taken in the 26GHz band strike the right balance between protecting satellite users and enabling the quick and efficient roll-out of 5G services?
- To what extent can the approach that is being seen in that band be transferred and used in other bands?

11:35 – 11:50 **Presentation**

11:50 – 12:05 **Presentation**

12:05 – 12:20 **Presentation**

12:20 – 12:35 **Presentation**

12:35 – 12:55 **Panel Discussion**

12:55 – 13:10 **Thinking Point: 5G microwave case and spectrum planning for delivering backhaul solution**

13:10 – 14:10 **Lunch**

Session 7: Meeting the connectivity requirements of vertical industries
A major focus area for regulators all around the world at present is on the best way to provide vertical industry users with access to 5G spectrum. A number of different licencing models are being explored by regulators around the world in order to deliver this, including the option to offer vertical users the opportunity to acquire spectrum directly, through localised 5G licences. This session will explore the pros and cons of the various approaches that are being seen and discuss the best way forward to ensure an efficient and flexible spectrum framework that satisfies the many varied 5G and vertical use cases.

- What examples of 5G commercial use cases are being seen across the region and how are their connectivity requirements being met?
- What approaches are available to regulators looking to provide vertical users with access to the required spectrum?
- What spectrum has been identified for vertical industries and in which bands?
- What are the benefits in providing access to spectrum directly to vertical users as opposed to the traditional method of using networks provided by traditional MNOs? What new challenges are raised?
- How are vertical sectors planning to use any spectrum that they are granted access to and what business models are being developed?
- What spectrum bands are being considered, and to what extent can vertical users demonstrate sufficient value to society to justify access to sometimes hugely valuable spectrum in this way?

14:10 – 14:25 **Presentation**

14:25 – 14:40 **Presentation**

14:40 – 14:55 **Presentation**

14:55 – 15:10 **Presentation**

15:10 – 15:25 **Presentation**

15:25 – 15:55 **Q&A and Discussion**

15:55 – 16:10 **Afternoon Coffee**

Session 8: Planning Ahead – A focus on national roadmaps for 5G and the connected world
Across the region, countries are putting into place their national plans and roadmaps for 5G development. This session will take the opportunity to hear case studies from representatives of some of these on their plans and preparations for 5G and the connected world of the future.

- What examples of spectrum roadmaps are being seen across the region?
- How important are these in encouraging investment in next generation networks and new technologies?

- To what extent are we seeing co-ordination across the region on both timing and bandplans, especially in neighbouring countries?
- How can regulators plan ahead to ensure that they are not left behind when it comes to 5G rollout?

16:10 – 16:25 **Country Case Study: Philippines National roadmap plan**

16:25 – 16:40 **Country Case Study: Malaysia Asean Digital Hub**

16:40 – 16:55 **Country Case Study: Indonesia national roadmap plans**

16:55 – 17:15 **Q&A and Discussion**