



# APT Preparations for WRC-19

ICAO NAM/CAR/SAM Regional Preparatory Workshop for WRC-19  
Mexico City, 6-7 February 2018

Presented by



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developed based on meeting outcomes of the

**APT Preparatory Group for WRC-19  
(APG19)**



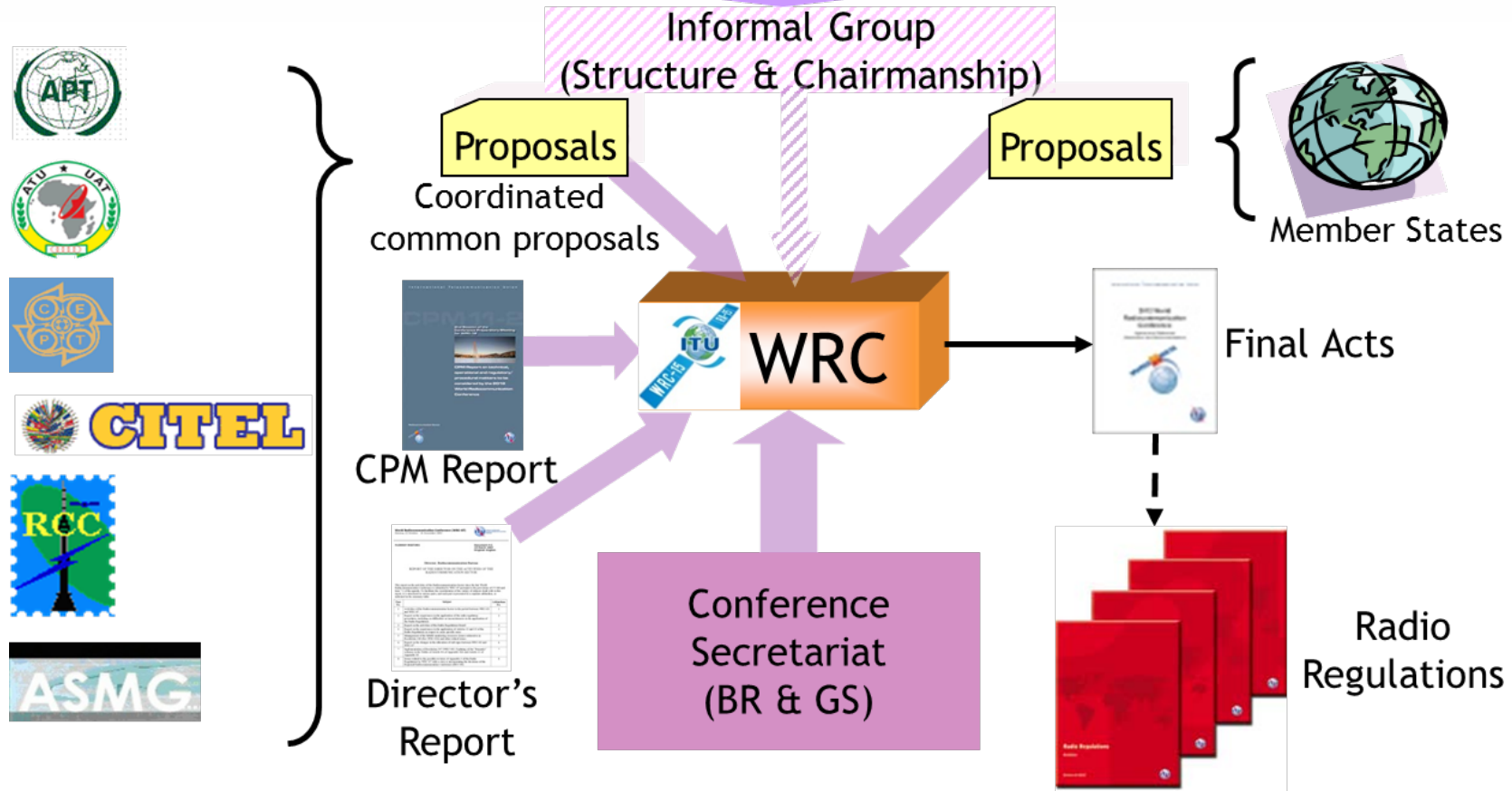
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# APT Preparatory Group for WRC-19

Agenda: draft in WRC Res & final in Council Res



The WRC Process

Source: ITU-BR

# APT Preparatory Group for WRC-19



- Preparatory activities for WRC-19 started in 2016
  - 1<sup>st</sup> meeting held 26-28 July 2016 in Chengdu, People's Republic of China
  - 2<sup>nd</sup> meeting held 17-21 July 2017 in Bali, Indonesia
  - Three further meetings scheduled before the conference in 2019
- Chairman:
  - Dr. Kyu-Jin Wee (Republic of Korea)
- Vice Chairs:
  - Mr. Neil Meaney (Australia)
  - Mr. Xiaoyang Gao (People's Republic of China)
- Special Senior Adviser to the APG:
  - Mr. Kavouss Arasteh (Islamic Republic of Iran)
- Editorial Chair:
  - Dr. Tommy Chee (New Zealand)

# APG19 structure

- APG Structure is same as CPM Chapter Structure

## WP1:

- Chapter 1: Land Mobile and Fixed Services: 1.11, 1.12, 1.14 & 1.15
- Chair: Ms. Zhu Keer (People's Republic of China)

## WP2:

- Chapter 2: Broadband Applications in the Mobile Service: 1.13, 1.16, 9.1 (issues 9.1.1, 9.1.5, 9.1.8)
- Chair: Dr. Kyung-Mee Kim (Republic of Korea)

## WP3:

- Chapter 3: Satellite Services: 1.4, 1.5, 1.6, 7 & 9.1 (issues 9.1.2, 9.1.3, 9.1.9)
- Chair: Mr. Muneo Abe (Japan)

## WP4:

- Chapter 4: Science Services: 1.2, 1.3 & 1.7
- Chair: Dr. Atmadji Soewito (Indonesia)

## WP5:

- Chapter 5: Maritime, Aeronautical and Amateur Services: 1.1, 1.8, 1.9, 1.10 & 9.1 (issue 9.1.4)
- Chair: Mr Bui Ha Long (Socialist Republic of Viet Nam)

## WP6:

- Chapter 6: General Issues: 2, 4, 8, 9.1 (issues 9.1.6, 9.1.7), 9.2, 9.3 & 10
- Chair: Mr. Taghi Shafiee (Islamic Republic of Iran)



# Process of developing ACPs

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- In general, the APT organises five APG meetings in each WRC preparatory cycle (currently 2016 – 2019)
- The APG meetings develop and revise APT Preliminary Views (APVs) on WRC agenda items based on:
  - ITU-R studies that are available
  - Input contributions from Members
- A two stage procedure is followed for preparing and approving APT Common Proposals (ACPs) for submission to the WRC

# Process of developing ACPs

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- Stage 1:
  - Based on the APT Preliminary Views (APVs) on Agenda Items  
→ WPs at the 5<sup>th</sup> and final APG meeting develop proposals
  - For each proposal, if consensus is reached at Plenary by APT Members attending the meeting, the proposal becomes a Preliminary APT Common Proposal (PACP)
  
- Stage 2:
  - All APT Member administrations (38) are then requested to indicate if their country name is to be included as a signatory for each PACP
  - A PACP becomes APT Common Proposal (ACP) if it is
    - ❖ Supported by at least 25% of the APT Members (Administrations); &
    - ❖ Not opposed by 50% of the number of Members who support it



# APG19-2 meeting

- APG19-2 held in Bali, Indonesia, from 17-21 July 2017
- 460 participants
- First opportunity to develop APT preliminary views (APVs)
- Successful in developing APVs on most WRC-19 agenda items
  - Generally support ongoing studies
- Three more APG19 meetings to revise the APVs



# WRC-19 AIs related to aviation

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- Agenda items related to specific aviation issues
  - AI 1.10 - Spectrum & regulatory provisions for GADSS
  - AI 9.1 (issue 9.1.4) - Stations on board sub-orbital vehicles
- Agenda items in which aviation is a concerned party
  - Land Mobile and Fixed Services: AIs 1.11, 1.12 & 1.14
  - Broadband Applications in the Mobile Service: AIs 1.13 & 1.16
  - Science Services: AI 1.7
  - Maritime Services: AIs 1.8 & 1.9 (issues 1.9.1 & 1.9.2)
  - Satellite Services: AI 9.1 (issue 9.1.3)
  - General: AIs 4, 8, 9.1 (issue 9.1.6) and 10

# AIs of particular importance

- Agenda Items of particular importance to aviation
  - AI 1.10 - Spectrum & regulatory provisions for GADSS
    - *“to consider spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System (GADSS), in accordance with Resolution 426 (WRC-15)”*
  - AI 9.1 (issue 9.1.4) - Stations on board sub-orbital vehicles
    - *“to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention: on the activities of the Radiocommunication Sector since WRC-15*  
*Issue 9.1.4 - Resolution **763 (WRC-15)** - Stations on board sub-orbital vehicles”*

# Agenda item 1.10 (GADSS)

- **Aviation View:**
  - Support regulatory changes that enhance the GADSS concept, while ensuring protection of aviation systems
- **APT Preliminary Views:**
  - APT Members support the ITU-R studies being undertaken for the introduction and use of Global Aeronautical Distress and Safety System (GADSS) in accordance with Resolution **426 (WRC-15)**
  - APT Members are of the view that the studies on spectrum needs and regulatory provisions required for the implementation of GADSS should take into account the GADSS concept developed and provided by ICAO
- **DG Chairman:**
  - Mr Sungchul Chae – Korea (Rep. of)

# Agenda item 9.1 (issue 9.1.4) (Sub-orbital vehicles)

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- **Aviation View:**
  - Ensure protection of aviation systems
- **APT Preliminary Views:**
  - APT Members support the ITU-R studies in accordance with Resolution **763 (WRC-15)**
- **DG Chairman:**
  - Dr Suryanegara Muhammad – Indonesia

# Agenda items of concern

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- Agenda items in which aviation has concerns of spectrum access by other services, compatibility with other services or protection from interference
  - 1.7, 1.8, 1.9 (issues 1.9.1 & 1.9.2), 1.11, 1.12, 1.13, 1.14, 1.16 and 9.1 (issue 9.1.3)
- Agenda items where the future interests of aviation need to be promoted and taken into account
  - 4, 8, 9.1 (issue 9.1.6) and 10



# Agenda item 1.7 (TT&C for short duration NGSO)



- **Aviation View:**
  - Protect aviation use of 150.05-174 MHz & 400.15-420 MHz (e.g. 406 MHz)
- **APT Preliminary Views:**
  - APT Members are of the view that:
    - ITU-R studies should be continued in accordance with Resolution **659 (WRC-15)**
    - Protection of existing services is necessary and any new allocations or upgrades of existing allocations to the space operation service could be applied without any constraint to the incumbent services and their future development
    - The following frequency ranges should not be considered:
      - ❖ Maritime mobile VHF radiocommunication in the frequency ranges 156-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, in accordance with RR No. **5.226** and Appendix **18 (Rev. WRC-15)**
      - ❖ The frequency range 406-406.1 MHz that is dedicated for satellite emergency position-indicating radio beacons, in accordance with Resolution **205 (Rev. WRC-15)**; and
      - ❖ Frequency bands used by Global Maritime Distress and Safety System (GMDSS) included in Appendix **15** of RR
- **DG Chairman:**
  - Mr Nguyen Huy Cuong – Vietnam

# Agenda item 1.8 (GMDSS)

- **Aviation View:**

- Support GMDSS improvements, but monitor to ensure no impact to aviation systems – if GMDSS targets AMS(R)S bands then ensure AMS(R)S maintains priority

- **APT Preliminary Views:**

- APT members support the ITU-R studies on possible regulatory actions for GMDSS modernization to enhance maritime capabilities and the studies on sharing and compatibility with other services in the frequency bands and adjacent frequency bands under study and to ensure possible modification to the Radio Regulations to protect services to which the frequency bands are currently allocated without any constraints by additional GMDSS satellite systems, in accordance with Resolution **359 (Rev. WRC-15)**
- Regarding resolve 1, APT members support the incorporation of NAVDAT systems and NAVDAT frequencies, both MF and HF as described in Recommendation ITU-R M.2010 and ITU-R M.2058, into GMDSS. The existing frequencies used for NAVTEX should be retained
- Regarding resolve 2, APT members support the followings:
  - The introduction of modifications to the Radio Regulations to provide for additional satellite systems should not have any impact on the existing services within the frequency band and the adjacent bands under study;

*Other Views*

- Some APT members have the view that the listed frequencies of the additional GMDSS satellite provider in the Appendix 15 should be on primary basis

- **DG Chairmen:**

- Mr Byungok Kim – Korea (Rep. of)
- Mr Zhao Xiao Dong – China

# Agenda item 1.9 (issue 1.9.1) (Autonomous maritime radio devices in 156-162.05 MHz)

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- **Aviation View:**

- Support GMDSS improvements, but monitor to ensure no impact to aviation systems

- **APT Preliminary Views:**

- APT members support the ITU-R studies on the spectrum needs, technical and operational characteristics, categorization, identifications of AMRDs and its applications, as well as the studies in relation to regulatory actions within the frequency band 156-162.05 MHz while ensuring the protection of the GMDSS and AIS, in accordance with Resolution **362 (WRC-15)**
- APT members are also of the view that:
  - AMRDs which enhance the safety of navigation should be regulated for the use of frequencies and identities of the maritime mobile service;
  - AMRDs which do not enhance the safety of navigation, regulation of the use of frequencies, and technical and operational characteristics, should benefit both the user of devices as well as coexistence with maritime safety devices and applications. Identification of additional spectrum within the frequency band 156-162.05 MHz and a new numbering scheme which is different from those in the existing maritime mobile service should be considered;
  - Search and rescue aircraft system operating in maritime frequencies must be protected.

- **DG Chairman:**

- Mr Hu Bo – China

# Agenda item 1.9 (issue 1.9.2) (VDES satellite component)



- **Aviation View:**

- Support enhanced maritime communications, but monitor to ensure no impact to aviation systems

- **APT Preliminary Views:**

- APT Members support the ITU-R studies undertaken in accordance with Resolution **360 (Rev. WRC-15)** to identify possible new allocations to the maritime mobile-satellite service for VDES satellite component
- In regards to the possible modification of the Radio Regulations under WRC-19 Agenda Item 1.9.2, APT Members are of the view that:
  - Existing allocations and systems in the same and adjacent bands, especially the AIS, must be protected from harmful interference or any constraints, which include but are not limited to, any modification requested to existing AIS equipment;
  - Search and rescue aircraft system operating in maritime frequencies must be protected;
  - VDES satellite components downlink transmission should not degrade the terrestrial VDES components, ASM and AIS operations;
  - VDES satellite components should not claim protection from harmful interference caused by stations of a land mobile service to which frequencies are already assigned; and
  - If the spectrum needs were appropriately justified, new spectrum allocations could be identified to the maritime mobile-satellite service (MMSS) (Earth-to-space and space-to-Earth) with the provisions ensuring not to cause harmful interference and no claim of protection from incumbent service on a primary basis in the same and adjacent frequency bands.

- **DG Chairman:**

- Mr Yoshio Miyadera – Japan

# Agenda item 1.11 (Railway)

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- **Aviation View:**
  - Ensure protection of aviation systems
- **APT Preliminary Views:**
  - Some APT Members support a new WRC Resolution to facilitate global or regional harmonized frequency bands to support RSTT within existing mobile service allocations
  - Some APT Members are of the view that there is no need to change the Radio Regulations under this agenda item to accommodate regional and/or global harmonization for RSTT
  - Some APT Members are considering other possible methods other than the two Methods currently developed by ITU-R WP5A to satisfy this agenda item
- **DG Chairman:**
  - Mr Liu Bin – China

# Agenda item 1.12 (ITS)

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- **Aviation View:**
  - Ensure protection of aviation systems
- **APT Preliminary Views:**
  - APT Members support studies under Resolution **237 (WRC-15)** toward possible harmonization of frequency bands in existing mobile-service allocations for the implementation of evolving Intelligent Transport Systems (ITS)

## *Other Views*

- Some APT Members support LTE-V2X as one of the evolving ITS technologies, and any harmonised frequency bands for ITS should not be restricted to, nor exclude, any particular evolving ITS technology
- Some APT member countries are considering possible Methods to satisfy the agenda item other than the method to not change the Radio Regulations and to SUP Resolution **237 (WRC-15)**. For example, to modify Article **5** of the Radio Regulations by adding a footnote which refers to a WRC Resolution, to develop a WRC Resolution which refers to an ITU-R Recommendation, or to ADD a footnote in Article **5** of Radio Regulations that directly references an ITU-R Recommendation
- Some APT Members are of the view that there is no need to change the Radio Regulations to satisfy this agenda item
- **DG Chairman:**
  - Mr Suppapol Jaroonvanichkul – Thailand



# Agenda item 1.13 (IMT-2020)

- **Aviation View:**
  - Ensure no impact on commercial systems used by civil aviation
- **APT Preliminary Views:**
  - APT Members support the consideration of additional frequency bands for International Mobile Telecommunications (IMT), including possible additional mobile allocations on a primary basis, in accordance with Resolution **238 (WRC-15)**
  - APT Members also support ITU-R studies on spectrum needs for the terrestrial component of IMT and sharing and compatibility studies in accordance with Resolution **238 (WRC-15)**. It is important for these sharing and compatibility studies to take into account protection of services to which the band is allocated on a primary basis.
- **DG Chairman:**
  - Dr Hiroyuki Atarashi – Japan

# Agenda item 1.14 (HAPS)

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- **Aviation View:**
  - If studies show no impact on aviation systems, support concept of using UAS/RPAS for HAPS platform, provided no constraint on future use of HAPS fixed links for aeronautical communications
  
- **APT Preliminary Views:**
  - APT Members support the ITU-R studies undertaken in accordance with Resolution **160 (WRC-15)** to study spectrum needs for High Altitude Platform Stations (HAPS), taking into account existing frequency bands that have already been identified for HAPS in the Radio Regulations and appropriate regulatory actions
  - APT Members also support sharing and compatibility studies between HAPS and other services to ensure protection of services to which frequency bands are allocated without any constraint to these services in accordance with Resolution **160 (WRC-15)**
  
- **DG Chairmen:**
  - Dr Andri Qiantori – Indonesia
  - Mr Nguyen Anh Tuan – Vietnam

# Agenda item 1.16 (RLAN)

- **Aviation View:**

- Ensure any changes near 5 150 MHz do not impact AeroMACS and protect ARNS in 5 350-5 470 MHz

- **APT Preliminary Views:**

- APT members support studies being conducted in ITU-R in accordance with Resolution **239 (WRC-15)**
- APT members are of the view that the protection of incumbent services including their current and planned use in the frequency bands 5 150-5 350 MHz, 5 350-5 470 MHz, 5 725-5 850 MHz and 5 850-5 925 MHz should be ensured, without any unacceptable constraints on these services

*Other Views*

- Some APT Members do not support allocation of the band 5 350-5 470 MHz to mobile service and the use of WAS/RLAN in the band 5 350-5 470 MHz unless results of ITU-R studies show that sharing and compatibility can be achieved with existing services
- Some APT Members support the worldwide use of the band 5 725-5 850 MHz for mobile service taking into account RR **No.5.453**
- Some APT Members are of the view that it would be desirable to consider outdoor operations of WAS/RLAN in the frequency band 5 150-5 350 MHz

- **DG Chairman:**

- Dr Fang Jicheng – China

# Agenda item 4 (Review WRC Res. and WRC Rec.)



- **APT Preliminary Views:**

- APT Members support modification or suppression as appropriate of WRC Resolutions and Recommendations contained in Volume 3 of the Radio Regulations in accordance with Resolution **95 (Rev.WRC-07)**. To facilitate consideration with a view to developing the APT positions on this agenda item towards the WRC-19, a list of the past conference Resolutions and Recommendations is provided in the table in Attachment 1 to Document APG19-2/OUT-11. In reviewing the above mentioned table, the following points need to be noted:
  - Since a number of the studies requested by the WRC Resolutions are now under consideration by relevant ITU-R Study Groups, APT Members are encouraged to participate in these studies;
  - the progress of the above studies is important information for those Resolutions that include “*invites ITU-R*”, or similarly, the progress of the implementation work of the ITU Radiocommunication Bureau (BR) is also important for those Resolutions that include “*instructs the Director of the Radiocommunication Bureau*”.

- **DG Chairman:**

- Dr Akira Hashimoto – Japan

# Agenda item 8 (Country footnotes)

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- **APT Preliminary Views:**
  - TBD
- **DG Chairman:**
  - Dr Arifin Nugroho – Indonesia

# Agenda item 9.1 (issue 9.1.3) (C-Band NGSO-FSS operations)



- **Aviation View:**

- Ensure no impact on aviation use in those bands and protection of aviation systems in 4 200-4 400 MHz

- **APT Preliminary Views:**

- APT Members support the ITU-R studies of technical and operational issues and regulatory provisions for new non-GSO systems in the 3 700-4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz and 6 725-7 025 MHz frequency bands under the terms of Resolution **157 (WRC-15)**
- APT Members are of the view that any revision or development of technical and operational conditions and regulatory provisions for new non-GSO systems should ensure the protection of the existing services in these bands and should not limit or additionally constrain the future development of these services

- **DG Chairman:**

- Mrs Cheng Fenhong – China



# Agenda item 9.1 (issue 9.1.6) (Wireless power transmissions)

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- **Aviation View:**
    - Ensure aviation systems are considered in studies
  - **APT Preliminary Views:**
    - APT Members support the studies carried out by ITU-R in accordance with Resolution **958 (WRC-15)** to assess the impacts of WPT for electric vehicles on radiocommunication services and to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles.
- Other Views*
- Some APT Members are considering the frequency range 79 kHz – 90 kHz for harmonization of WPT for electric vehicles. Some other APT members are waiting for the completion of ITU-R studies on this matter.
- **DG Chairman:**
    - Mr Satoshi Kobayashi – Japan

# Agenda item 10

## (Future WRC agenda items)

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- **APT Preliminary Views:**
  - TBD
- **DG Chairman:**
  - TBD

# Schedule of APG19 meetings

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- APG19-3 will be held in Perth, Australia, from 12-16 March 2018
- APG19-4 will be held in [TBA], Republic of Korea, from 7-12 January 2019
- APG19-5 will be held in Tokyo, Japan, from 31 July to 6 August 2019



APG Documents are available at: [www.aptsec.org/APTAPG](http://www.aptsec.org/APTAPG)

**THANK YOU!**