

ADVANTAGE CONSULTING & ENGINEERING SERVICES CTU SPECTRUM MANAGEMENT TASK FORCE CITEL PCC-II May 2023 Meeting Update

> 27 July 2023 Carmelo Rivera

# CITEL PCC-II Update

- 22 May 26 May 2023
- Mexico City, Mexico
- Hybrid Meeting (In person and remote)
- 4 meeting sessions per day
  - Two 90 minute sessions each morning
  - Two 90 minute sessions each afternoon
- 400+ registered delegates from 24 Member States, 31 Associate Members and representatives from 2 regional telecommunications organizations and the ITU

## CITEL WRC-23 SGT-1

- SGT-1 Mobile, Fixed and Broadcast
- Agenda Items 1.1, 1.2, 1.3, 1.4, 1.5, 9.1(C), 9.2 Terrestrial
- Coordinator Amy Sanders (USA) asanders@ntia.gov
- Alternate Coordinator Jose Costa (CAN) jose.costa@ericsson.com

- to consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No. **5.441B** in accordance with Resolution **223** (**Rev.WRC-19**);
- Canada submitted a proposal to modify 5.441B to apply the pfd criteria in the 4800-4990 MHz band to all countries.
- Brazil submitted a proposal to apply 9.21 coordination criteria to all countries.

Rapporteur: Lisa Amirault (Canada) (lisa.amirault@canada.ca)

- to consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution COM6/2 (WRC-19);
- United States Proposal for No Change in the 6425 7075 MHz band in Region 2. The proposal was supported by Bahamas, Belize, Costa Rica, Colombia, Dominican Republic, [Jamaica], and El Salvador making it an IAP.
- Canada submitted a Preliminary Proposal for No Change in the 7025 7125 MHz band.
- Brazil Proposal for IMT allocation in the 10 GHz band was supported by Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Paraguay, Peru, and Uruguay making in an IAP.
- Canada submitted a proposal for no change in the 10 GHz band. The proposal received support from USA, and Bahamas making it a DIAP.

## Agenda Item 1.2 (continued)

#### • 3300 – 3400 MHz and 3600 – 3800 MHz band

- Brazil Preliminary Proposal for IMT allocation to the 3300-3400 MHz band was supported by Argentina, Bahamas, Belize, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, and USA giving the proposal the status of Inter-American Proposal (IAP). The IAP was considered finalized and will be submitted to the ITU for WRC-23.
- In the 3600 3800 MHz band there were several proposals submitted. Brazil proposal is to modify 5.434 to identify the use of IMT in the 3600 3700 MHz band in Region 2. Canada submitted a proposal to modify 5.434 to identify the use of IMT in the 3600 3800 MHz band in Region 2. Ecuador submitted a proposal to identify 3700 3800 MHz for IMT with pfd limits to protect FSS. United States proposal to modify 5.434 to identify use of IMT in the 3600-3800 MHz band by administrations wishing to implement IMT was supported by Peru and [Uruguay] giving the proposal the status of Draft IAP.
- Argentina submitted a proposal to modify 5.434 to allow countries to add their names to 5.434 if they want to identify the 3600 3700 MHz band for use of IMT. This proposal was supported by Bolivia and Mexico elevating the proposal to DIAP. The U.S. argued that adding administration names to a footnote comes under AI 8 and not AI 1.2.

Rapporteur: Luciana Camargo (Brazil) (lcamargos@gsma.com) Michael Mullinax (USA) (mmullinix@ctia.org)

• to consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with **Resolution COM6/3 (WRC-19)**;

• Argentina, Brazil, Mexico, Ecuador, Uruguay, and USA supported an IAP which states that any changes to the Radio Regulations in the 3600–3700 MHz band in Region 1 must not impact the existing allocations for Region 2. The IAP was finalized and will be sent to ITU for WRC-23.

Rapporteur: Javier Amado Alarcon (Mexico) (Javier.amado@ift.org.mx)

- to consider, in accordance with Resolution COM6/4 (WRC-19), the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level; (\*Note: Bands include: 694-960 MHz, 1710 1885 MHz, 2010-2025 MHz, 2110 2170 MHz and 2500 2690 MHz)
- Brazil Preliminary Proposal supporting allocations to HIBS in all of the proposed bands. The proposal was supported by Colombia, Costa Rica, [Dominican Republic], Ecuador, Guatemala, Mexico, Uruguay, and USA making it an IAP. The IAP contains a total of 15 proposals.
- United States submitted a proposal for no change in the 1710 1885 MHz band.

Rapporteurs: Geraldo Neto (Brazil) (<u>geraldo@tmgtelecom.com</u>) Pascale Dumit (USA) (<u>pascale.dumit@t-mobile.com</u>)

• to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-19);

• Argentina, Brazil, Dominican Republic, Ecuador, Mexico, Paraguay, Uruguay and USA supported an IAP which states that any changes to the Radio Regulations in the 470-960 MHz band in Region 1 must not impact the existing allocations for Region 2. Therefore NOC in Region 2 under this A.I.. The IAP was finalized and will be sent to ITU for WRC-23.

Rapporteur: Luiz Fausto (Brazil) (<u>luiz.fausto@g.globo</u>) Louis Bell (USA) (<u>louis.bell@fcc.gov</u>)

## Agenda Item 9.1 Topic C

• 9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention;

• 9.1 on the activities of the Radiocommunication Sector since WRC-19:

9.1.3 Study the use of International Mobile Telecommunication system for fixed wireless broadband in the frequency bands allocated to the fixed services on primary basis, in accordance with Resolution COM6/18 (WRC-19);

• Mexico Preliminary Proposal for No Change to the Radio Regulations supported by Argentina, Brazil, Dominican Republic, Ecuador, Mexico, Paraguay, Uruguay and the United States. The IAP was finalized and will be sent to ITU for WRC-23.

Rapporteur: Jose Costa (Canada) (jose.costa@ericsson.com) Carlos Valle (El Salvador) (cvalle@siget.gob.sv) Michelle Caldeira (Brazil) michelle.caldeira@ses.com)

# Agenda Item 9.2 (Terrestrial)

on any difficulties or inconsistencies encountered in the application of the Radio Regulations;

This agenda sub-item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. Administrations are invited to inform the Director of the Radiocommunication Bureau of any difficulties or inconsistencies encountered in the Radio Regulations.

• No inputs received at this meeting

Rapporteur: Jayne Stancavage (USA) (jayne.stancavage@intel.com)

## CITEL WRC-23 SGT-2

- SGT-2 Radiolocation, Maritime, Aeronautical
- Agenda Items 1.6, 1.7, 1.8, 1.9, 1.10, 1.11
- Coordinator Michael Razi (CAN) mrazi@parscom.ca
- Alternate Coordinator Jose luis Hernandez Lara (MEX) Jose.Hernandezl@ift.org.mx

to consider, in accordance with Resolution **COM6/5 (WRC-19)**, regulatory provisions to facilitate radiocommunications for sub-orbital vehicles;

Canada submitted a proposal with new regulatory provisions for operation of sub-orbital vehicles that received support from Brazil, Mexico [Uruguay] and the United States. The proposal is now a DIAP.

Rapporteur: Chris Tourigny (USA) (<u>chris.Tourigny@faa.gov</u>) Marcella Ost (Canada) (<u>marcella.s.ost@boeing.com</u>)

- to consider a new aeronautical mobile-satellite (R) service (AMS(R)S) allocation in accordance with Resolution **COM6/6 (WRC-19)** for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands;
- Brazil, Canada and United States submitted proposals for this agenda item. Parts of the proposals were merged and supported by at least one other administration please see document CITEL/GT/CMR-23/doc. 066/23 rev.2.

Rapporteur: Sandra Wright (USA) (<u>Sandra.a.wright@faa.gov</u>)

- to consider, on the basis of ITU-R studies in accordance with Resolution COM6/7 (WRC-19), appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution 155 (Rev.WRC-19) and No. 5.484B to accommodate the use of fixed-satellite service (FSS) networks by control and non-payload communications of unmanned aircraft systems;
- The United States submitted a proposal that modifies 5.484B to provide clarity to the services and systems for which it applies.

Rapporteur: Scott Kotler (USA) (scott.kotler@lmco.com)

to review Appendix 27 of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU-R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (route) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with Resolution COM6/8 (WRC-19);

• Brazil, Canada and USA submitted proposals that were combined into a single DIAP modifying Appendix 27 allowing use of contiguous or non-contiguous channels without changing the existing channel plan.

Rapporteur: Greg Baker (USA) (Gregory.baker@fcc.gov)

- to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution COM6/9 (WRC-19);
- United States submitted a proposal for no change to the Radio Regulations. The proposal was supported by Canada and is now a DIAP

Rapporteur: Thu Luu (USA) (thu.luu@us.af.mil)

- to consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System and the implementation of e-navigation, in accordance with Resolution **361** (Rev.WRC-19);
- Issue A: Modify RR Article 5 Table of Allocations supported by Canada, Guatemala, [Trinidad and Tobago, Uruguay, and USA. (DIAP)
- Issue B: No change to frequency allocation for e-navigation supported by Canada, Guatemala, Mexico, [Trinidad and Tobago], Uruguay, and USA (DIAP)
- Issue C: No change to RR regarding introduction of additional satellite systems into the GMDSS supported by Canada, Mexico, Uruguay, and USA (DIAP)

Rapporteur: Donald Jansky (USA) (don@jansky-barmat.com) Juan Cace (Argentina) (juan.cace@accesspartnership.com)

## CITEL WRC-23 SGT-3

- SGT-3 Science Services
- Agenda Items 1.12, 1.13, 1.14, 9.1(A)
- Coordinator Edwin Andres Montes de Oca Perez (MEX) Edwin.montesdeoca@aft.org.mx
- Alternate Coordinator TBD

to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution **656 (Rev.WRC-19)**;

• Canadian proposal to provide a new secondary allocation to the EESS (active) in the 40-50 MHz band supported by Brazil (DIAP)

Rapporteur: Glenn Feldhake (USA) (glenn.s.Feldhake@nasa.gov)

to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution **COM6/10 (WRC-19)**;

• Mexico and USA combined proposals to elevate SRS to primary in the 14.8 – 15.35 MHz band (DIAP)

Rapporteur: TBD

- to review and consider possible adjustments of the existing or possible new primary frequency allocations to EESS (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements, in accordance with Resolution COM6/11 (WRC-19);
- Brazil and Canada submitted proposals to add additional spectrum for EESS (passive) in the subject band. The proposals were combined and supported by Ecuador elevating them to a DIAP.

Rapporteur: Jonathan Williams (USA) (jonwilli@nsf.gov)

## Agenda Item 9.1 Topic A

• 9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention;

• 9.1 on the activities of the Radiocommunication Sector since WRC-19:

9.1.1 In accordance with Resolution 657 (Rev.WRC-19), review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services;

- The USA submitted a Preliminary Proposal for No Change to the Radio Regulations.
- Canada submitted a Preliminary Proposal to ADD space weather allocations under the meteorological aids service.

Rapporteur: TBD

## CITEL WRC-23 SGT-4

- SGT-4 Satellite Services
- Agenda Items 1.15, 1.16, 1.17, 1.18, 1.19, 7, 9.2 (Satellite), 9.3
- Coordinator Afonso Rocha (B) afonsor@anatel.gov.br
- Alternate Coordinator Maria Fernanda Sanchez Zavala (MEX) Fernanda.sanchez@ift.org.mx

- to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-tospace) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution **COM6/12 (WRC-19)**;
- Canada and Mexico submitted proposals which were merged to create a DIAP adding a footnote to Art 5 on the operation of earth stations on aircraft and vessels communicating with geostationary space stations. At this meeting the DIAP was supported by Costa Rica, Ecuador, Guatemala, and Uruguay elevating it to an IAP.

Rapporteur: Giselle Creeser (USA) (<u>Giselle.creeser@intelsat.com</u>)

to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the frequency bands 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by non-GSO FSS earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution **COM6/13 (WRC-19)**;

• Brazil Proposal adding a footnote for ESIMS communicating with FSS in several bands. Canada, Costa Rica, Ecuador, Mexico, and USA supported the proposal elevating it to an Inter-American Proposal.

Rapporteur: Nicolas LaFlamme (Canada) (<u>Nicolas.laflamme@canada.ca</u>) George Malcolm (Jamaica) (<u>gmalcolm@sma.gov.jm</u>)

to determine and carry out, on the basis of the ITU-R studies in accordance with Resolution **COM6/14 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate;

• Mexico submitted a proposal for No Change to Art 5 of the Radio Regulations.

Rapporteur: Michelle Caldeira (Brazil) (<u>michelle.caldeira@ses.com</u>) Ted Berman (USA) (<u>tberman@peraton.com</u>)

to consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution COM6/15 (WRC-19);

• United States Preliminary Proposal for No Change to the Radio Regulations supported by Bahamas, Brazil, Costa Rica, Ecuador, Guatemala, Mexico, Paraguay, and Uruguay elevating to an IAP

Rapporteur: Nick Spina (Canada) (<u>nspina@keplercommunications.com</u>) Jennifer Manner (USA) (<u>Jennifer.manner@echostar.com</u>)

- to consider a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2, while protecting existing primary services in the band, in accordance with Resolution COM6/16 (WRC-19);
- Brazil Preliminary Proposal for a primary allocation to the FSS in the 17.3-17.7 GHz band in Region 2 the proposal was supported by Argentina, Brazil, Canada, Costa Rica, Ecuador, Mexico Paraguay, Uruguay and USA making the proposal an IAP. The IAP was finalized and will be sent to ITU for WRC-23.

Rapporteur: Luis Fernandes (Brazil) (<u>lfernandes@hispamar.com.br</u>) Ryan Henry (USA) (<u>ryan.henry@ses.com</u>)

#### Agenda Item 7

- to consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86** (Rev.WRC-07), in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;
- Topics E and F are PPs
- Topics A, B, C, G, H, I and J are now DIAPs
- Topics D2 and D3 are IAPs

Rapporteur: Gerardo Martinez (Mexico) (<u>Gerardo.martinez@ift.org.mx</u>) Michel Olivier Ndi (Canada) (<u>michelovier.ndi@canada.ca</u>)

## Agenda Item 9.2 Satellite

• 9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations;

• This agenda sub-item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. Administrations are invited to inform the Director of the Radiocommunication Bureau of any difficulties or inconsistencies encountered in the Radio Regulations.

• No inputs were received at this meeting.

Rapporteur: TBD

on action in response to Resolution 80 (Rev.WRC-07);

No inputs were received at this meeting.

Rapporteur: TBD

## CITEL WRC-23 SGT-5

- SGT-5 General regulatory, Future work & Other
- Agenda Items 2, 4, 9.1B, 9.1D, 10
- Coordinator Ricardo Martinez Duque (CLM) Ricardo.martinez@ane.gov.co
- Alternate Coordinator Kenji Kuramochi (PRG) kenji@conatel.gov.py

#### Agenda Item 2

to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with *further resolves* of Resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in *resolves* of that Resolution;

#### Agenda Item 4

- in accordance with Resolution **95 (Rev.WRC-19)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;
- United States submitted a proposal to modify Res 655 (WRC-15).

Rapporteur: Phillip Malcolm (Jamaica) (<u>pmalcolm@sma.gov.jm</u>) Lyndel McDonald (Jamaica) (<u>lmcdonald@sma.gov.jm</u>)

## Agenda Item 9.1 Topic B

• 9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention;

• 9.1 on the activities of the Radiocommunication Sector since WRC-19:

9.1.B Review of the amateur service and the amateur-satellite service allocations in the frequency band 1 240-1 300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service operating in the same band in accordance with Resolution COM6/17 (WRC-19);

• No change proposals were submitted by Brazil, Canada and USA. The proposals were combined and supported by Colombia, Mexico, Paraguay and Uruguay and created an IAP.

Rapporteur: Flavio Archangelo (Brazil) (<u>Flavio.archangel@gmail.com</u>) Esthephanie Alvarez (Mexico) (<u>esthephanie.Alvarez@ift.org.mx</u>)

### Agenda Item 9.1 Topic D

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention;
9.1 on the activities of the Radiocommunication Sector since WRC-19:
9.1.4 to review protection of EESS (passive) in the Frequency band 36-37 GHz from non-GSO FSS space stations

• USA submitted a No Change proposal.

Rapporteur: TBD

#### Agenda Item 10

#### • Future Agenda Items

• **Brazil** - to consider identification of the frequency band[s] [TBD], or parts thereof, for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **[IMT-NEW-BANDS]** (WRC-23);

• **Brazil/Mexico** - to study and revise the conditions and constraints in RR Nos. **5.502** and **5.503** to enable a more efficient use and sharing of the band 13.75-14 GHz by the FSS uplink of geostationary and not geostationary earth stations, including FSS earth stations using smaller antenna sizes, while considering the sharing conditions with applications of other services sharing the band as outlined in these footnotes, in accordance with new Resolution [AI 10 13.75-14 GHz small antennas] (WRC-23). This is a **DIAP**.

• Canada - to consider new allocations to the mobile-satellite service on a primary basis for narrowband mobile-satellite systems operating in the non-geostationary orbits, in accordance with Resolution [A10 NB-MSS] (WRC-23);

• **Canada** – to consider regulatory provisions for appropriate recognition of space weather sensors and their protection in the Radio Regulations taking into account the results of ITU-R studies in accordance with Resolution [Space Weather] (WRC-23);

## Agenda Item 10 (continued)

• Canada/Mexico - to consider the use of the 51.4-52.4 GHz band by gateway earth stations transmitting to non-geostationary satellite orbit systems operating in the fixed-satellite service (FSS) (Earth-to-Space) in accordance with Resolution [AI10\_51.4-52.4 Non-GSO FSS] (WRC-23); This is a DIAP.

• Ecuador - To provide for urgent studies in the Ku and Ka-band frequency range to review and revise, as appropriate the epfd limits applicable to non-GSO FSS systems and associated regulatory provisions. The proposal has support from Haiti, Peru and El Salvador and is now a **DIAP**.

• **Mexico** - To study the viability of the use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 40.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) by aeronautical and maritime earth stations in motion communicating with geostationary or no geostationary space stations in the fixed satellite service, and in any case, define the regulatory and technical considerations to promote its use.

• **Mexico** - To study the viability of the use of the frequency band 51.4 - 52.4 GHz by no geostationary satellite systems in the fixed satellite service, and in any case, define the regulatory and technical considerations to promote its use.

## Agenda Item 10 (continued)

• **Mexico** – To examine the possible use of the 12.75-13.25 frequency band by aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service (Earth-space)

• United States - the United States proposes to suppress agenda item 2.6 from the WRC-27 preliminary agenda along with the consequential suppression of Resolution 657 (REV. WRC-19) as it is no longer needed.

• United States - the United States proposes to suppress agenda item 2.13 from the preliminary WRC-27 agenda and the consequential suppression of Resolution 248 (WRC-19) as it is no longer necessary.

Rapporteur: Fabian Herrera Santana (Colombia) (Fabian.Herrera@ane.gov.co)

Michael Christensen (Canada) (Michael.Christensen@canada.ca)

Maria Myers Hamilton (Jamaica) (mmyers.Hamilton@sma.gov.jm)

#### Upcoming Dates

• Next CITEL PCC.II meetings scheduled for:

August 28 – September 1, 2023 in Ottawa, Canada (Final Meeting)

- Radiocommunication Assembly scheduled 13-17 November, 2023
- WRC-23 scheduled November 20 December 15, 2023 in Dubai
- WRC-27 CPM1 scheduled 18-19 December, 2023

## Any Questions?

Thank you!

Carmelo Rivera carmelo.rivera@aces-inc.com +1.240.818.2766