New Inmarsat satellites and the need for harmonized licensing of satellite terminals
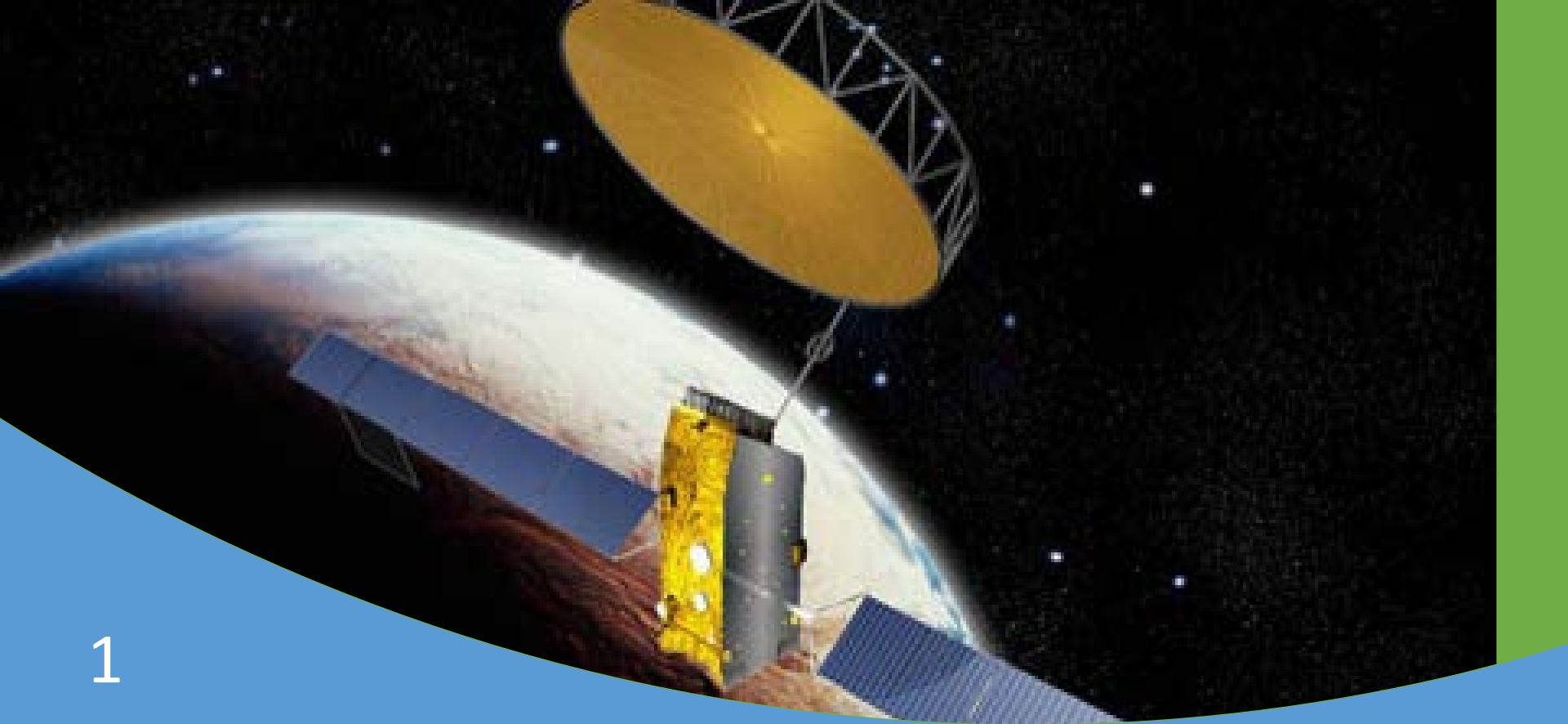
Laura Roberti
Director Regulatory and Market Access
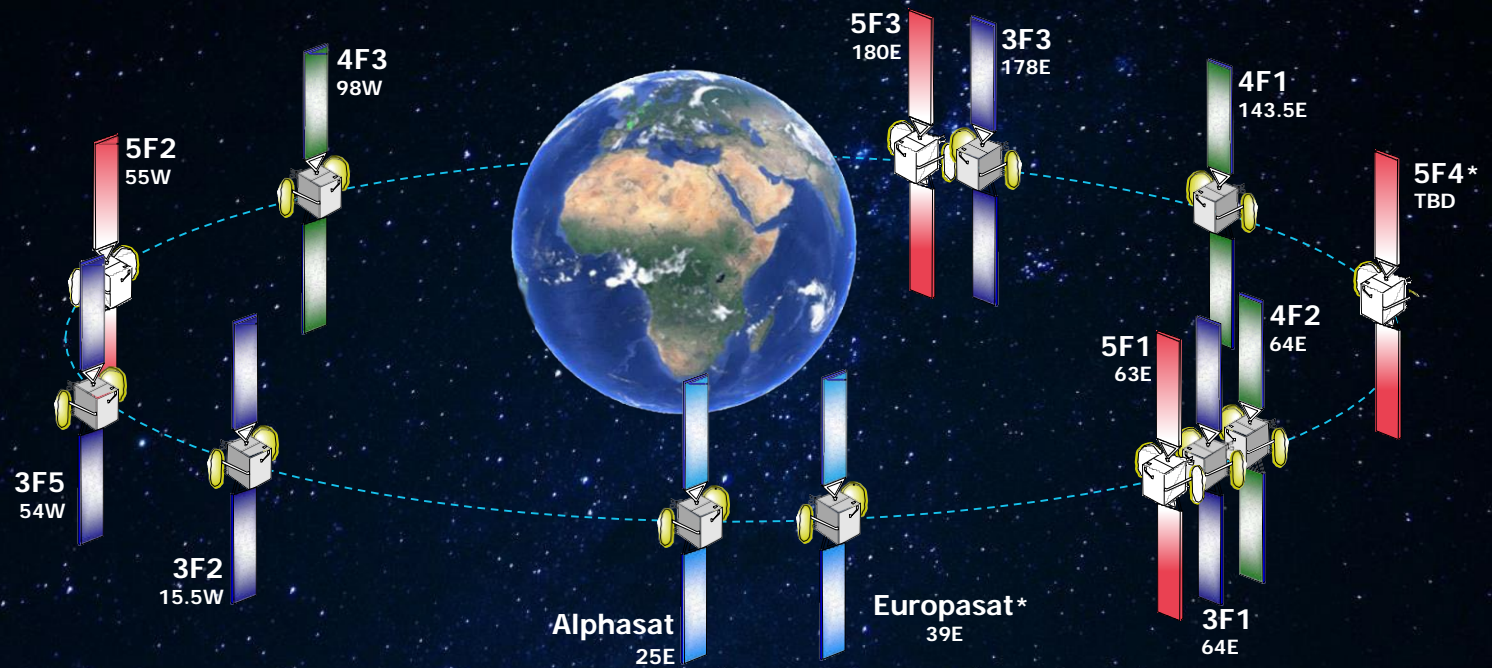
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New satellite technologies

Large portfolio of services using different frequency bands

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Inmarsat fleet

Real global access in L, extended L, S and Ka-bands

4F3
98W

5F2
55W

3F5
54W

3F2
15.5W

5F3
180E

3F3
178E

4F1
143.5E

5F4*
TBD

4F2
64E

5F1
63E

3F1
64E

Alphasat
25E

Europasat*
39E

*) launch in 2017

L-band Maritime and aero safety – future services

- **Global Maritime Distress and Safety System (GMDSS**)
  - compulsory on any ship above 300gt
- **Inmarsat-C:** Distress Alerting, Enhanced Group calls, Reporting and Polling services

FleetBroadband Safety	Maritime Safety Terminals with enhanced functionality. Under assessment by IMO for GMDSS compatibility

- **Inmarsat Classic Aero - Safety and Operational Services**
  - Flight Tracking
  - Cockpit operational and safety services
  - Installed on 95% of the current long haul fleet (> 10000 aircraft)
- **GADSS (Global Aeronautical Distress and Safety System)**
    1) Global Flight Tracking
    2) Autonomous Distress Tracking
    3) Flight Data Recovery ("Black box in the cloud)

SwiftBroadband-Safety (SB-S)	Supports all GADSS requirements. Available for initial retrofit installation on existing aircraft today and is scheduled to become a standard option on new aircraft deliveries from 2018

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New service offerings

New business opportunities

European Aviation Network (EAN)
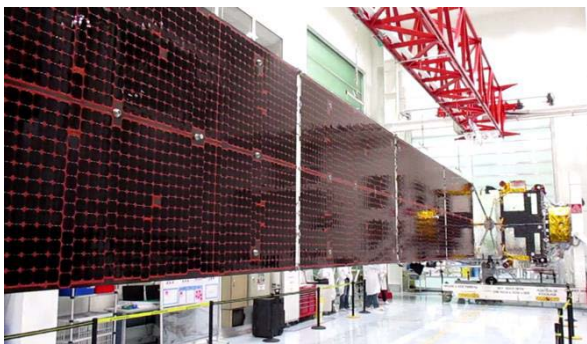

M2M (Machine to Machine)

IOT (Internet Of Things)
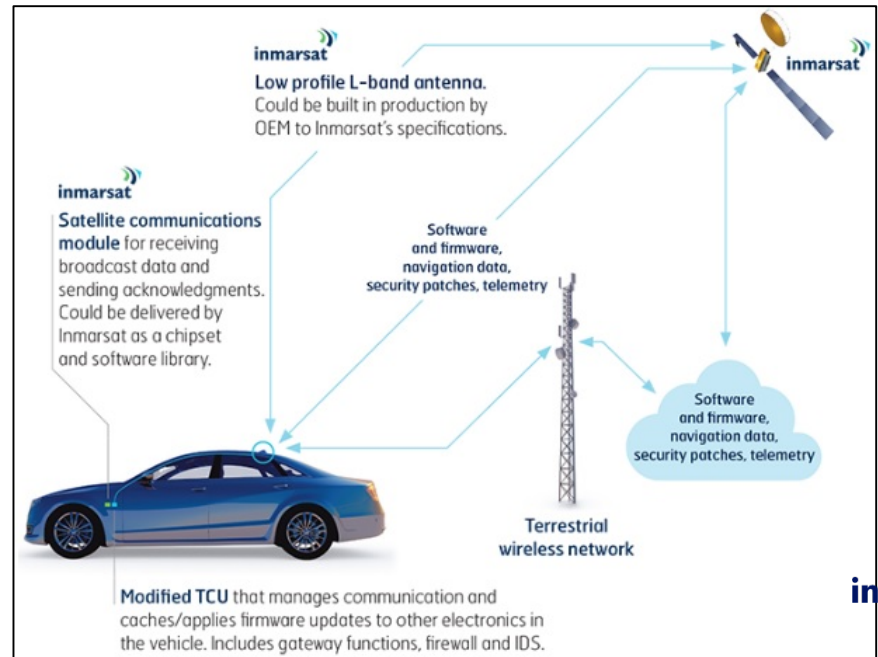
Connected car

Inmarsat new satellites

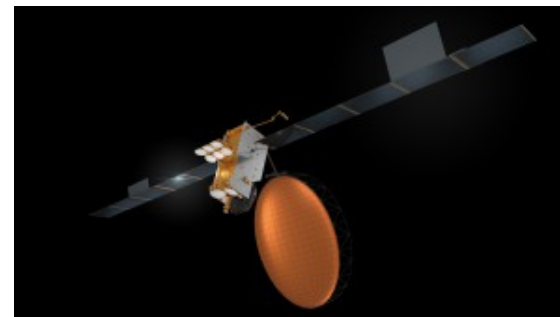L, S and Ka-band systems

Inmarsat-5 F4 (Ka-band, launch in May 2017)

Europasat (S-band, launch in June 2017)
1980-2010MHz
2170-2200MHz

Inmarsat-6 (L & Ka-bands, launch in 2020)

Inmarsat – well positioned for the future

1. **Diversified product portfolio** across multiple sectors, verticals and geographies

2. Global, seamless, fully-integrated, mobility-tailored broadband & narrowband networks, with in-orbit redundancy

3. Diverse range of opportunities to deliver growth including Aviation with unique European Aviation Network & Automotive with unique global OTA updates

4. Powerful global distribution network across all markets and geographies

5. 37 years of market leadership with premium position in highly attractive and growing markets

6. Financial strength and ability to invest in profitable growth

7. Highly skilled workforce and culture focused on innovation and excellence

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National and regional licensing of satellite terminals

A proposal for the APAC region and examples from ITU/other regions

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ESIMs (Earth Stations in Motion)

People want to use these..
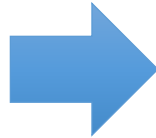
anytime, anywhere!

- ESIMs operate in Ka-band **(19.7-20.2/29.5-30GHz)** GSO Fixed-Satellite Service (FSS) networks (RR. 5.527A and Res.156 (WRC-15))

- User Terminals with small directional antennas for the provision of broadband communication services.

- May be mounted on aircraft, ships, land vehicles & platforms…

ESIMs expand the traditional FSS and MSS type applications providing truly global broadband services to mobile platforms

ESIMs in the National Frequency Allocation Plan

5.527A The operation of earth stations in motion communicating with the FSS is subject to Resolution **156 (WRC-15)**. (WRC-15)

24.75-29.9 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
29.5-29.9	**29.5-29.9**	**29.5-29.9**
FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B **5.527A** 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B **5.527A** 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B **5.527A** 5.539
Earth exploration-satellite (Earth-to-space) 5.541	MOBILE-SATELLITE (Earth-to-space)	Earth exploration-satellite (Earth-to-space) 5.541
Mobile-satellite (Earth-to-space) 5.540 5.542	Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540	Mobile-satellite (Earth-to-space) 5.540 5.542

Licensing of user terminals
Proposal for a commonly agreed approach

- Inmarsat input paper submitted to PRFP-9 for ESIMs

Resolution of PRFP-9 regarding regional regulatory harmonization

- Input paper submitted to **PRFP-10** by various satellite operators

1. **Agreement to the free circulation of terminals**: based on mutual recognition of domestic licensing, free circulation would be permitted amongst signatories countries. This would still provide scope for control by the individual regulatory body.

2. **An harmonised licensing framework:** user terminals governed at the domestic level by the conditions of a "**blanket**"/ "**class**"/ "**general user**" radio licence, so as to avoid the burden of individual terminal-by- terminal licensing of user terminals.

Satellite operators would be obliged to comply with directions (eg. to respond to corrective measures) – when needed – from the regulator

# Authorising Satellite terminals
Proposal for a register of terminals

- Terminals covered by a suggested MOU agreement could be contained within a Register, which can be amended and expanded by mutual agreement.

- **Operator**   **Equipment type**   **Qualifying standards, Recommendations etc**
- Operator A   Type 1   ETSI xx1, ITU Rec ZZ1
- Operator B   Type 2   ETSI xx2, ITU Rec ZZ2

Examples in the region
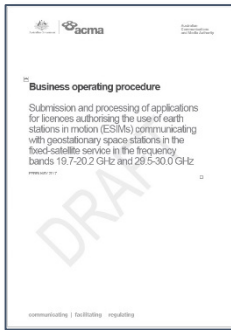
(ACMA) This business operating procedure (BOP) to be followed when seeking the issue of space or space receive licences authorising the use of earth stations in motion (ESIMs) communicating with geostationary space stations in the fixed-satellite service in the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz.
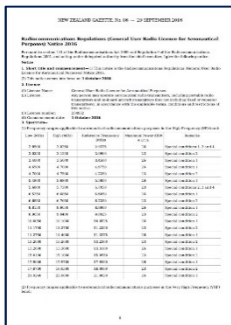
(NZL) ESIMs authorisation is in the form of a GURL (General User Radio Licences), i.e. class licence with a limited set of essential technical requirements.

Further action will spur others to follow and allow for broader deployment of these important broadband services to consumers in the Asia-Pacific and around the world.

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ITU references
Suggestions for commonly agreed approach

➢ **Global: ITU GMPCS-MoU**

- Global MSS since the late '90s.
- Free circulation is offered to user terminals, which are:
  - authorised by another administration (principle of mutual recognition)
  - type approved and bear the GMPCS-MoU mark.
- Domestic licences should be granted based on class/blanket licences, rather than individual terminal-by-terminal licences.

➢ **ITU-D report for Resolution 9 – "Participation of countries, particularly developing countries, in spectrum management".** *"The adoption of Resolution 156 (WRC-15) may lead to an increase in the growth of ESIM deployments in both developed and developing administrations. A consequence is that spectrum managers should not only consider the development and adoption of national regulatory frameworks for ESIM licensing and authorization, but also if and how to approach matters of regional harmonization. Options for spectrum managers are to consider: (1) Type-approved mark; **(2) Harmonised regional regulatory framework; (3) National-level exemptions; (4) National-level "blanket" licenses**; and (5) Spectrum authorization."*

Other regional examples (1/2)

➢ **Europe: ECC/DEC(13)01 for ESIMs**

- Provisions for the **harmonised use, free circulation and exemption from individual licensing** of ESIMs.
- Vastly implemented in Europe
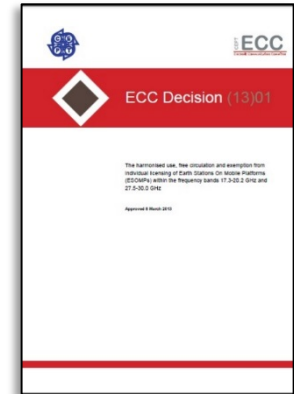
➢ **AFRICA:** The ATU (African Telecommunications Union) endorsed the principle of mutual licence and type approval recognition framework for ESIMs. On the basis of this principle, the subject is being considered at sub-regional level, where there is the requisite mandate/protocols for such frameworks. At the same time the African Union Commission (AUC) is tasked to explore ways in which harmonisation could be done at a continental level via the available tools and mandate of the AUC.

Other regional examples (2/2)

➤ **AMERICAS:** CITEL (Inter-American Telecommunication Commission) has approved two Recommendations

> ➤ **ESIMs: "Authorization of Earth Stations in Motion Communicating with** Geostationary Space Stations in the Fixed Satellite Service in the Frequency Bands 19.7-20.2 GHz and 29.5-30.0 GHz in the Americas…

recommends:

Consideration of adoption of national provisions to facilitate the deployment of ESIMs in the band 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) consistently with the framework adopted by WRC-15".

> ➤ **VSATs: "Generic or blanket licensing regimes for ubiquitously deployed fixed satellite service earth stations…**

Summary

- Inmarsat is developing and innovating to offer new services to new markets
- Diversified product portfolio across multiple sectors, verticals and geographies
- Operate across different frequency ranges: L-band, S-band, C-band, Ka-band and, in the near future, Q and V bands
- Clear path to market access is essential
- Proposal for an agreement related to harmonisation of approaches to authorisation
  - Free circulation of user terminals authorised in the country of registration (i.e. mutual recognition)
  - Blanket/class license for domestic terminals (i.e. no individual terminal license)
- System of recognition of pre-registered terminal and equipment which meets internationally approved standards.

Thank you!

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