Singapore, the first country to extend public 5G standalone coverage to sea for maritime operations

IMDA partners MPA to develop the world’s first and largest Maritime testbed at sea

Singapore – 30th August 2022: Singapore will achieve full 5G standalone (SA) coverage over our anchorages, fairways, terminals, and boarding grounds by mid-2025. 5G coverage in our current port waters will enable the establishment of Singapore’s 5G@SEA, the world’s first public and largest 5G Maritime testbed to trial, innovate and commercialise Maritime 5G use-cases over the next decade.

Mr Lew Chuen Hong, Chief Executive, IMDA said, “As a nation with high ambitions for the transformative powers of 5G, we have rolled out our inland 5G coverage. In partnership with MPA, we now look to extend 5G coverage offshore. We look forward to being able to be one of the world’s first countries for automated ship movement and remote pilotage. IMDA is excited to see the next bound of Maritime innovation as we support Singapore’s efforts as a global Maritime capital”.

Home to one of the world’s busiest Maritime activities, Maritime 5G coverage for Singapore’s offshore southern coasts will reduce turnaround time and improve efficiency for ships coming in and out of Singapore. Co-funded by the Infocomm Media Development Authority (IMDA) and the Maritime and Port Authority of Singapore (MPA), this collaboration will be a key enabler in supporting Singapore’s Maritime ambition to handle 65mil twenty-foot equivalent unit (TEU) upon the completion of Tuas Port in the 2040s.

Singapore’s 5G@SEA Maritime testbed is a collaboration by IMDA’s 5G Innovation and Ecosystem Development Programme and MPA’s Innovation Lab. Under this partnership, local mobile network operator M1 Limited (M1) will provide 5G SA network coverage.

Initial use-case to focus on Remote Assisted Pilotage Advisory

Once developed by mid-2025, Singapore’s 5G@SEA Maritime testbed will accelerate MarineTech research, development and facilitate testing of new applications that can improve Maritime innovation, job design & transformation and safety. As a start, initial use-cases will focus on Remote Assisted Pilotage Advisory (RAPA) for automation, productivity, and human safety.
Vessels of 300 Gross Tonnage (GT) and above entering Port of Singapore requires an MPA-licensed Harbour Pilot to physically board the vessel and provide guidance to shipmasters to navigate the vessel safely within Singapore’s waters. Currently, for large vessels, a harbour pilot must be transported by a small harbour craft from the pier to the vessel and proceed to climb a series of vertical ladders to the ship’s deck.

Maritime 5G will enable these pilots to remotely pilot the ship via a shore-based control centre through real-time video imagery providing situation awareness of the vessel. With this, the pilot does not need to physically board the ship. RAPA will help to significantly enhance service efficiency, improve resource utilisation and transform the role of a harbour pilot from a physically demanding job to remote operations, greatly enhancing safety.

**Reimagining the future of Singapore Maritime**

Maritime Autonomous Surface Ships (MASS) is another potential future Maritime use-case that will enable companies to develop and test new systems enabling ship-to-ship and ship-to-shore communications, autonomous manoeuvres and remote control of ships. Sensors onboard MASS are expected to generate a vast amount of critical data for activities such as collision avoidance and docking. Maritime 5G can provide a secure, high-performance network for the exchange of navigational safety data between MASS and between MASS and shore-based control centres, especially crucial in our congested port waters.

Other Maritime 5G use cases include shore-to-ship delivery, where drones will be able to quickly send critical components to the vessels out at sea instead of ships coming into the berth for urgent inspections and repairs. For ships with no medical personnel on board, telemedicine via HD video streaming will facilitate the provision of quick diagnosis for the less critical cases.

Companies interested to test, innovate on the next bound of 5G transformation please contact, 5GSG@imda.gov.sg.

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**About Infocomm Media Development Authority**

The Infocomm Media Development Authority (IMDA) leads Singapore’s digital transformation by developing a vibrant digital economy and an inclusive digital society. As Architects of Singapore’s Digital Future, we foster growth in Infocomm Technology and Media sectors in concert with progressive regulations, harnessing frontier technologies, and developing local talent and digital infrastructure ecosystems to establish Singapore as a digital metropolis.
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Annex A: Past 5G Maritime operations use-cases

In 2020, IMDA had previously partnered M1 and MPA to conduct coastal 5G network trials with Airbus for Urban Air Mobility Operations in real-world environments to ensure unmanned aerial vehicles can operate safely and efficiently during all phases of their flights. Local technology start-up Team One collaborated with mobile operator M1 and Airbus to successfully develop a compact and light-weight aeronautical 5G Standalone (SA) modem. Team One’s 5G modem has seen keen interest from ecosystem partners interested in using its modem for applications such as robot-as-a-service and drone communications. Following successful network trials, Singapore’s first Maritime Drone Estate (MDE) is 5G-enabled and allows business to leverage 5G for Maritime applications such as shore-to-ship deliveries and, remote ship inspections.

In 2022, IMDA partnered Keppel Offshore & Marine to develop and commercialise 5G-enabled solutions for the Maritime industry that will help to empower workers with real-time support and augmented work instructions from 5G-enabled AR/VR smart glasses solution.

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