

Input paper for the following Committee(s):

- ☐ ARM
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Purpose of paper:

- ☒ Input
 ☐ Information

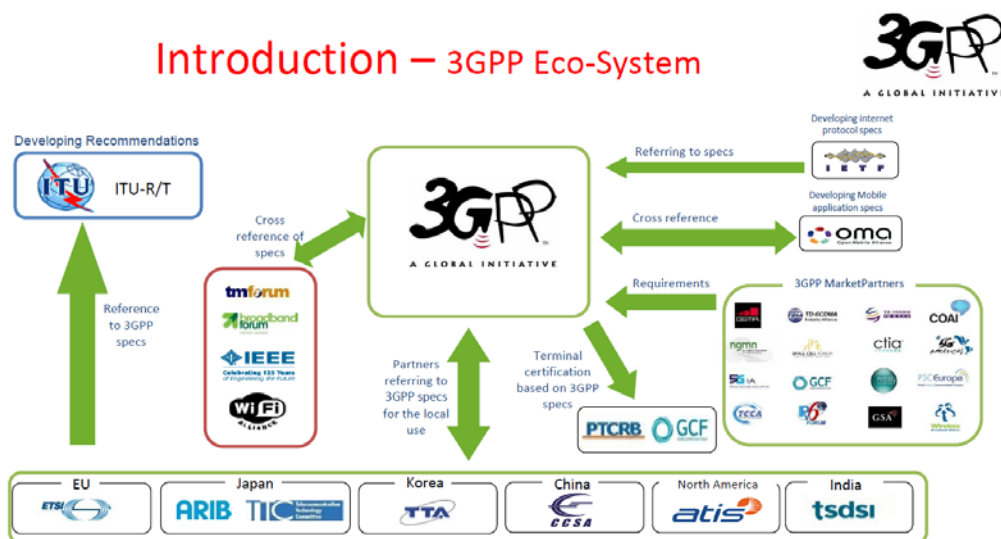
Agenda item 7.3 Connectivity
 Sub-item 7.3.3 3GPP
 Author(s) / Submitter(s) Secretariat

Maritime Connectivity via 3GPP

1 INTRODUCTION

During the 19th IALA Conference in Incheon, there was a presentation on “the new wave of GMDSS modernizations and the revolution of Maritime Communication Services over 3GPP systems in the 5G era” by Hyounhee Koo who is a rapporteur of the 3rd Generation Partnership Project (3GPP) MARCOM.

The presentation highlighted the continued development evolution of mobile communications technologies looking at the development through 2G, 3G and 4G, with a paradigm shift in the move to 5G and she presented the work of the 3GPP, including the Organization; and 3GPP is highlighted as a global initiative. The structure sits under a project co-ordination group (PCG).



- Hyounhee approached the secretariat in Aug 2018 and informed that 3GPP is preparing following two liaison notes to IALA. Liaison from 3GPP TSG SA plenary that is responsible for approving what SA working groups under 3GPP TSG SA plenary are agreed. 3GPP TSG SA plenary to send a liaison to IALA in order to form official relationship as a first step.
- Liaison from 3GPP SA WG1 that is in charge of developing service scenarios and service requirements and has currently standardized Stage 1 FS_MARCOM and Rel-16 Stage 1 MARCOM in order to specify service requirements related to maritime domain for the purpose of officially including maritime



domain in 3GPP scope and enabling existing 3GPP technologies to be applicable to maritime usage as a first step.

2 3GPP

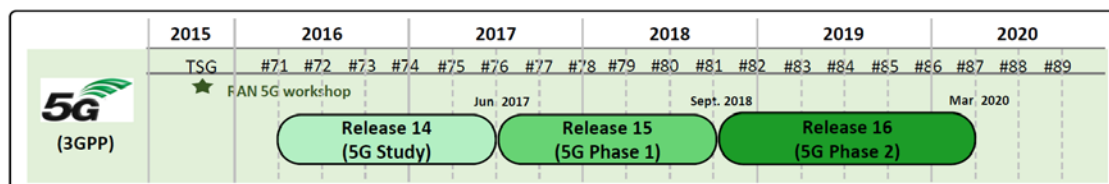
3GPP unites Seven telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners” and provides their members with a stable environment to produce the Reports and Specifications that define 3GPP technologies which includes 5G technologies. (<http://www.3gpp.org/about-3gpp/about-3gpp>)

3GPP started investigation on maritime domain and finished its feasibility study on Maritime Communication Services over 3GPP system (3GPP TR 22.819 v16.0.0 attached).

The technical report studied use cases and potential requirements for the support of maritime communication services over 3GPP system so that 3GPP system can be a good candidate of innovative tools to help address the information gap between users on land and users at sea as well as the maritime safety and vessel traffic management etc. in 5G era.

The report recognized that work is ongoing in the maritime domain for the digitalisation and mobilisation of maritime related businesses as well as maritime safety and traffic management. New movement towards the 4th Industrial Revolution of maritime domain is getting to recognise that mobile communication tools such as 3GPP system need to be taken into account for the realization of maritime autonomous ship, maritime smart shipping or smart port that requires the performance incapable of being satisfied by legacy maritime communication systems or evolved ones.

The feasibility study concluded that it is recommended to continue to study new maritime use cases that 3GPP need to take into account so that 3GPP system can be a good candidate of innovative tools as mobile communication platform necessary for the digitalization and mobilization of the maritime domain that bring about the Fourth Industrial Revolution of the maritime businesses as well as maritime safety and traffic management.



Time line of 5G standardisation

3GPP is inviting other industries, so called vertical domains, such as public safety, railway, industrial automation and etc. to submit their own requirements. Public safety vertical domain attends 3GPP meetings and works together to develop 3GPP stage 1 specifications and their requirements are reflected in from 3GPP Release 13 onwards.

3 DISCUSSION

3GPP has a large economy of scale, and could provide continuously evolving technology. The public safety and railway domains participated in 3GPP as a vertical domain and submitted their requirements.

5G technologies will probably be relatively short range and can therefore most probably be utilized in coastal waters rather than further out at sea. This is a good match with the connectivity needs of IALA members, being responsible for providing marine AtoN services nearby the coast.



IALA could join 3GPP as a vertical domain representing the interest of coastal states to develop the requirements. The possible role of IALA could be raising awareness and gathering the needs and requirements that feed into the standardization work of 3GPP.

Official partnership relations between 3GPP and maritime global organizations – i.e. IMO and IALA – there is a need for collaboration in the development of 3GPP – needs to be more official relationship between the development of 3GPP and the maritime organisations.

4 ACTION REQUESTED

PAP is requested to consider the above discussions and provide advice on the way forward.