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**APT REPORT ON**

**SURVEY ON the USAGE OF THE BANDS 457.5125-457.5875 MHZ AND 467.5125-467.5875 MHZ BY THE MARITIME MOBILE SERVICE IN ASIA-PACIFIC REGION**

**No. APT/AWG/REP-77
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***(Source: AWG-22/OUT-16)***

**APT REPORT ON SURVEY ON the USAGE OF THE BANDS 457.5125-457.5875 MHZ AND 467.5125-467.5875 MHZ BY THE MARITIME MOBILE SERVICE IN ASIA-PACIFIC REGION**

#  Introduction

WRC-15 approved the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned.

Therefore there is a necessity for development a report for administrations and mariners on the use of these bands in specific territorial waters.

This survey report is to collect information of current usage and regulation of the bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz in Asia Pacific region. TG AM believe the information is helpful for all APT member.

# Summary of the questionnaire

The questionnaire was made of five questions which can be found in APT/AWG website ([link](http://www.apt.int/sites/default/files/Upload-files/AWG/AWG-19%20Circular/AWG-19_Q2_UHF_Band3.docx)). The information about the current usage and regulation of the bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz in Asia Pacific region and the additional information related to the national regulation for the use of these frequency bands as well as the interference cases between UHF on-board vessel communication stations and other systems was encouraged to share in the questionnaire.

During the AWG-20 meeting held in Bangkok, Thailand, five administrations responded to the questionnaire, they are: Japan, New Zealand, Iran, Viet Nam and Thailand. During the AWG-21 meeting held in Bangkok, Thailand, Republic of Indonesia responded the questionnaire. During the AWG-22 meeting held in Busan, Republic of Korea, China responded the questionnaire. The detailed response and contributions could be found in the following input documents:

|  |  |
| --- | --- |
| **Country** | **Document** |
| China (People's Republic of) | AWG-21-INP-96 |
| Republic of Indonesia | AWG-21-INP-83 |
| Iran | AWG-20-INP-25 |
| Japan | AWG-20-INP-16 |
| New Zealand  | AWG-20-INP-23 |
| Thailand | AWG-20-INP-95 |
| Viet Nam  | AWG-20-INP-92, AWG-21-INP-65, AWG-21-INP-105 |

It was wished that this survey report can be helpful for APT member’s relevant study. The Task Group on Aeronautical and Maritime would consider to develop new APT/AWG Report on the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication stations in the maritime mobile service through Asia Pacific region.

# Administration/Institution/Company Information and Profile

**China (People's Republic of)**

|  |  |
| --- | --- |
| Name of the Administration/ Institution/Company | Ministry of Industry and Information Technology (MIIT) |
| Name of contact person | XU Ying |
| Address | 13 West Chang’an Ave. Beijing, China, 100804 |
| Phone | +86-10-68009096 |
| Email | xuying@srrc.org.cn |
| My institution is | Regulator |

**Republic of Indonesia**

|  |  |
| --- | --- |
| Name of the Administration/ Institution/Company | Ministry of Communication and Informatics |
| Name of contact person | Yudhistira Prayoga |
| Address | Gedung Menara Merdeka Lantai 10 JL. Budi Kemulyaan Jakarta Pusat   |
| Phone | +021 29576465   |
| Email | yudhistira.prayoga@postel.go.id |

**Japan**

|  |  |
| --- | --- |
| Name of the institution | Ministry of Internal Affairs and Communications |
| Name of contact person | Masashi Kamei |
| Mailing Address | 2-1-2 Kasumigaseki Chiyoda Ku Tokyo Japan |
| Phone | +81 3-5253-5816 |
| Email Address  | m.kamei@soumu.go.jp |
| My institution is | Regulator |

**New Zealand**

|  |  |
| --- | --- |
| Name of the institution | Ministry of Business, Innovation and Employment |
| Name of contact person | Peter Gent |
| Mailing Address | Po Box 2847, Wellington, 6011, New Zealand |
| Phone | +64 4 462 4279 |
| Email Address  | radio.spectrum@mbie.govt.nz |
| My institution is | Regulator |

**Iran**

|  |  |
| --- | --- |
| Name of the institution | Communications Regulatory Authority of The I.R of IRAN |
| Name of contact person | Alireza Darvishi |
| Mailing Address | No. 17; Before The Seyyed Khandan Bridge; Shariati ST.; Tehran - Iran |
| Phone | +98 21 88112809 |
| Email Address  | darvishi@cra.ir |
| My institution is | Regulator |

**Viet Nam**

|  |  |
| --- | --- |
| Name of the institution | Vietnam Authority of Radio Frequency management |
| Name of contact person | Nguyen Minh Tuan |
| Mailing Address | 115 Tran Duy Hung Street, Ha Noi, Viet Nam |
| Phone | +84.43.5564870 |
| Email Address  | tuannm@rfd.gov.vn  |
| My institution is | Regulator |

**Thailand**

|  |  |
| --- | --- |
| Name of the institution | Office of The National Broadcasting and Telecommunication Commission (NBTC) |
| Name of contact person | Mr. Somsarid Kricharoen |
| Mailing Address | 87 Phaholythin 8 (Soi Sailom), Samsen Nai, Phayathai, Bangkok |
| Phone | +66 2271 0151 60 ext 4146 |
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| My institution is | Regulator |

# Questionnaire responses

**4.1 Question 2**

What are the national frequency allocations (e.g. Fixed service, Mobile service, Maritime mobile service, Meteorological-satellite (space-to-Earth), Earth exploration satellite service, space research (active) service, …) within the listed band in your country? What is the regulation, especially the specific details on the service operations in your country (e.g. internal country footnote, specific regulation, guideline for application)?

**Response from China (People's Republic of)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | FIXEDMOBILE 5.286AAAeronautical radionavigation 5.271Radiolocation5.287 CHN28 | CHN28In this band, the quoted international footnotes on IMT application do not change the primary or secondary basis of existing services in the allocation table for mobile service. The study should be carried out on applying mode for the planned services，frequency use plan, compatible condition between services and coordination procedure in this band as soon as possible. Erenow, IMT applications are not put into practical operation, but in 2300-2400MHz band, IMT can be permitted to indoor use. (2010) |
| 2 |  | 457.5125 - 457.5875 |
| 3 | 460 – 470 |  | FIXEDMOBILE 5.286AAMETEOROLOGICAL-SATELLITE (space-to-Earth) 5.290Radiolocation5.287 5.289 CHN28 |
| 4 |  | 467.5125 - 467.5875 |

**Response from Indonesia**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | FIXED MOBILE | **INS-12*** The radio frequency bands of 450–457,5 MHz in pairs with 460–467,5 MHz are prioritized for mobile services.
* The radio frequency bands of 450–470 MHz are planned for the International Mobile Telecommunications (IMT) system implementation.

(TASFRI \* Rev. 2014)\*) Indonesian Radio Frequency Allocation Table |
| 2 |  | 457.5125 - 457.5875 | FIXED MOBILE |  |
| 3 | 460 – 470 |  | FIXED MOBILE | **INS-12*** The radio frequency bands of 450–457,5 MHz in pairs with 460–467,5 MHz are prioritized for mobile services.
* The radio frequency bands of 450–470 MHz are planned for the International Mobile Telecommunications (IMT) system implementation.

(TASFRI \* Rev. 2014)\*) Indonesian Radio Frequency Allocation Table |
| 4 |  | 467.5125 - 467.5875 | FIXED MOBILE |  |

**Response from Iran:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 | 452.5-457.5 | MOBILE (public trunk)(Uplink) & FIXED | - |
| 457.5-459 | MOBILE & FIXED |
| 2 |  | 457.5125 - 457.5875 | MOBILE & FIXED | - |
| 3 | 460 – 470 | 462.5-467.5 | MOBILE (public trunk)(Downlink) | - |
| 467.5-470 | MOBILE & FIXED & Metrological-Satellite (Space-to-Earth) |
| 4 |  | 467.5125 - 467.5875 | MOBILE & FIXED & Metrological-satellite (Space-to-Earth) | - |

**Response from Japan:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | Fixed service, Mobile service |  |
| 2 |  | 457.5125 - 457.5875 | Mobile service | The conditions for use of Frequency:On-Board Communication shall be used, and assignment is subject to table of Frequencies for Shipboard Communication Equipment at On-Board Communication Stations and Ship Stations\*\*see section of Answer for Question 3 |
| 3 | 460 – 470 |  | Fixed serviceMobile serviceMeteorological satellite service (space to earth) |  |
| 4 |  | 467.5125 - 467.5875 | Mobile service | The conditions for use of Frequency:On-Board Communication shall be used, and assignment is subject to table of Frequencies for Shipboard Communication Equipment at On-Board Communication Stations and Ship Stations\*\*see section of Answer for Question 3 |

**Response from New Zealand:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | FIXEDMOBILE | Refer to Public Information Brochures ([PIB 22](http://www.rsm.govt.nz/online-services-resources/publications/pibs/22): *Fixed service bands in New Zealand* and [PIB 23](http://www.rsm.govt.nz/online-services-resources/publications/pibs/23): *Mobile service bands in New Zealand*) for detailed channel plans  |
| 2 |  | 457.5125 – 457.5875 | Maritime on-board communication  | *General User Radio Licence for Maritime UHF On-Board Communications*  |
| 3 | 460 – 470 |  | FIXEDMOBILE | Refer to Public Information Brochures ([PIB 22](http://www.rsm.govt.nz/online-services-resources/publications/pibs/22): *Fixed service bands in New Zealand* and [PIB 23](http://www.rsm.govt.nz/online-services-resources/publications/pibs/23): *Mobile service bands in New Zealand*) for detailed channel plans  |
| 4 |  | 467.5125 – 467.5875 | Maritime on-board communication  | *General User Radio Licence for Maritime UHF On-Board Communications* |

**Response from Viet Nam:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | FIXED MOBILE | VTN6A: Frequency band of 450-470 MHz is defined for the mobile communication systems of IMT. Restrict more deployment of other radio systems for purpose of economics - society in this frequency band.**Decision 07/2007/QD-TTg:**456-457,37MHz (CDMA-BR) |
| 2 |  | 457.5125 - 457.5875 | FIXED MOBILE | The maritime mobile spectrum in 450 – 470 MHz band is limited to UHF on-board communication systems, and shall not cause harmful interference to, or claim protection from stations operating in the fixed or mobile services |
| 3 | 460 – 470 |  | FIXEDMOBILE 5.286AASATELLITE METEOROLOGY(From Space to Earth) | VTN6A: Frequency band of 450-470 MHz is defined for the mobile communication systems of IMT. Restrict more deployment of other radio systems for purpose of economics - society in this frequency band.**Decision 07/2007/QD-TTg:**460-467,37MHz (CDMA-BT) |
| 4 |  | 467.5125 - 467.5875 | FIXEDMOBILE | The maritime mobile spectrum in 450 – 470 MHz band is limited to UHF on-board communication systems, and shall not cause harmful interference to, or claim protection from stations operating in the fixed or mobile services |

**Response from Thailand:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Bands (MHz)** | **Sub band (MHz)** | **Service** | **Specific Regulation** |
| 1 | 456 – 459 |  | FIXED SERVICEMOBILE SERVICE |   |
| 457.5125 - 457.5875 | Maritime mobile service |  |
| 2 | 460 – 470 |  | FIXED SERVICEMOBILE SERVICEMeteorological-satellite (space-to-Earth) |  |
| 467.5125 - 467.5875 | Maritime mobile service |  |

**4.2 Question 3**

Please provide the national regulation, in detail (if any), for the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication systems in the maritime mobile service in your country’s territorial waters

**Response from China (People's Republic of)**

There is no specific national regulation for the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication systems in the maritime mobile service in Chinese territorial waters.

The bands 457.5125 – 457.5875 MHz and 467.5125 – 467.5875 MHz are identified in RR No. 5.287 for onboard communication stations in the maritime mobile service. For the sake of more efficient use of spectrum, WRC-15 revised No. 5.287 to enable the use of narrower channel spacing in these bands. Currently, the National Frequency Allocation Table has been revised accordingly.

**Response from Indonesia**

Currently there is no specific national regulation for the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication systems in the maritime mobile service.

**Response from Japan:**

The frequency bands 457.5125 - 457.5875 MHz and 467.5 - 467.65 MHz are allocated to only mobile service. There are conditions for these bands which are subject to below table of frequency list.

Japan will modify table below of frequency list as the footnote 5.287 of Radio Regulations Article 5 will be changed from 1, January 2017.

Specific regulation: (In this band,) On-Board Communication shall be used, and assignment is subject to below table

(Until 31, December 2016)

Table of Frequencies for Shipboard Communication Equipment at On-Board Communication Stations and Ship Stations:

|  |
| --- |
| 156.75 MHz 156.85 MHz457.525 MHz 457.55 MHz 457.575 MHz467.525 MHz 467.55 MHz 467.575 MHz 467.6 MHz 467.6125 MHz 467.625 MHz |

(From 1, January 2017)

Table of Frequencies for Shipboard Communication Equipment at On-Board Communication Stations and Ship Stations:

1. Table of frequency bands when using 25 kHz channel

|  |
| --- |
| 156.75 MHz 156.85 MHz457.525 MHz 457.55 MHz 457.575 MHz467.525 MHz 467.55 MHz 467.575 MHz |

1. Table of frequency bands when using 12.5 kHz channel

|  |
| --- |
| 457.525 MHz 457.5375 MHz 457.55 MHz 457.5625 MHz 457.575 MHz467.525 MHz 467.5375 MHz 467.55 MHz 467.5625 MHz 467.575 MHz |

1. Table of frequency bands when using 6.25 kHz channel

|  |
| --- |
| 457.515625 MHz 457.521875 MHz 457.528125 MHz 457.534375 MHz457.540625 MHz 457.546875 MHz457.553125 MHz 457.559375 MHz 457.565625 MHz 457.571875 MHz457.578125 MHz 457.584375 MHz467.515625 MHz 467.521875 MHz 467.528125 MHz 467.534375 MHz467.540625 MHz 467.546875 MHz467.553125 MHz 467.559375 MHz 467.565625 MHz 467.571875 MHz467.578125 MHz 467.584375 MHz |

**Response from New Zealand:**

Use of communication systems on-board maritime vessels in New Zealand is governed by *General User Radio Licence for Maritime UHF On-Board Communications.* A copy of this GURLcan be found at:

<http://www.rsm.govt.nz/about-rsm/spectrum-policy/gazette/gurl/maritime-uhf-on-board-communications>

This GURL permits any person to transmit in the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz for the purposes of maritime on-board communications in accordance with the applicable terms, conditions and restrictions as outlined in this GURL. This is similar to a licence-exempt regime where frequency use is on a no-interference no-protection basis.

New Zealand is undertaking changes to allow better use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz for maritime on-board communications in line with Recommendation [ITU-R M.1174-3](https://www.itu.int/rec/recommendation.asp?lang=en&parent=R-REC-M.1174-3-201503-I). A revised GURL is expected to be released in Q4 2016 to reflect the outcomes of WRC-15 Agenda item 1.15.

**Response from Iran:**

So far, No license has been issued for the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication systems in Iran territorial waters. Although, Studies are being carried out regarding the possibility of using those frequency bands by on-board communication systems in Iran territorial waters.

**Response from Viet Nam:**

So far in Viet Nam, there is no specific national regulation for the use of 457,5125 - 457,5875 MHz and 467.5125 - 467.5875 MHz by on-board communication systems in the maritime mobile service. Currently, the National Frequency Allocation Table has been revising with the inclusion of new regulation for the use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by on-board communication systems in the maritime mobile service in Viet Nam’s territorial waters.

**Response from Thailand:**

Thailand does not prescribe regulations specifically for this sub-band. Generally, the characteristics of the equipment should conform to the Recommendation ITU-R M.1174-3.

**4.3 Question 4**

Technical characteristics of UHF on-board communication systems currently implemented in your country

**Response from China (People's Republic of)**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | Yes |  |
| Digital |  |  |
| Channel bandwidth | 25 kHz | Yes |  |
| 12.5 kHz |  | Planned |
| 6.25 kHz |  | Planned |
| Duplexing | Simplex (one frequency) | Yes |  |
| Duplex (two frequencies) |  |  |

**Response from Indonesia**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | No |  |
| Digital |  No |  |
| Channel bandwidth | 25 kHz | No |  |
| 12.5 kHz | No |  |
| 6.25 kHz | No |  |
| Duplexing | Simplex (one frequency) | No |  |
| Duplex (two frequencies) | No |  |

**Response from Japan:**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | Yes |  |
| Digital | No | Japan will apply digital technology from 1, January 2018. |
| Channel bandwidth | 25 kHz | Yes |  |
| 12.5 kHz | Yes | Japan will apply digital technology from 1, January 2018. |
| 6.25 kHz | No | Japan will apply digital technology from 1, January 2018. |
| Duplexing | Simplex (one frequency) | Yes |  |
| Duplex (two frequencies) | No |  Japan will apply duplex technology from 1, January 2018. |

**Response from New Zealand:**

| **Technical characteristics** | **Apply** | **Note** |
| --- | --- | --- |
| Technology | Analog | Yes  | As permitted in *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2011)*. |
| Digital | Yes | New Zealand is undertaking changes to allow digital operations applicable to 12.5 kHz and 6.25 kHz channels in line with Recommendation [ITU-R M.1174-3](https://www.itu.int/rec/recommendation.asp?lang=en&parent=R-REC-M.1174-3-201503-I). A revised *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2016)* is expected to be released in Q4 2016 to reflect the outcomes of WRC-15 Agenda item 1.15.  |
| Channel bandwidth | 25 kHz | Yes  | As permitted in *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2011)*. |
| 12.5 kHz | Yes | Selected channels are permitted to operate in 12.5 kHz, in accordance with *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2011)*.New Zealand is undertaking changes to allow better use of 12.5 kHz channels in line with Recommendation [ITU-R M.1174-3](https://www.itu.int/rec/recommendation.asp?lang=en&parent=R-REC-M.1174-3-201503-I). A revised *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2016)* is expected to be released in Q4 2016 to reflect the outcomes of WRC-15 Agenda item 1.15.  |
| 6.25 kHz | Yes | New Zealand is undertaking changes to allow better use of 6.25 kHz channels in line with Recommendation [ITU-R M.1174-3](https://www.itu.int/rec/recommendation.asp?lang=en&parent=R-REC-M.1174-3-201503-I). A revised *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2016)* is expected to be released in Q4 2016 to reflect the outcomes of WRC-15 Agenda item 1.15. |
| Duplexing | Simplex (one frequency) | Yes | As permitted in *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2011)*. |
| Duplex (two frequencies) | Yes  | As permitted in *General User Radio Licence for Maritime UHF On-Board Communications (Notice 2011)*. |

**Response from Iran:**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | No | - |
| Digital | No | - |
| Channel bandwidth | 25 kHz | No | - |
| 12.5 kHz | No | - |
| 6.25 kHz | No | - |
| Duplexing | Simplex (one frequency) | No | - |
| Duplex (two frequencies) | No | - |

**Response from Viet Nam:**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | Yes  |  |
| Digital | No | The devices support Digital mode, but the applicants use Analog mode only |
| Channel bandwidth | 25 kHz | Yes |  |
| 12.5 kHz | Yes |  |
| 6.25 kHz | No |  |
| Duplexing | Simplex (one frequency) | Yes |  |
| Duplex (two frequencies) | No |  |

**Response from Thailand:**

|  |  |  |
| --- | --- | --- |
| **Technical characteristics** | **Apply** | **Note** |
| Technology | Analog | Yes |  |
| Digital | No |  |
| Channel bandwidth | 25 kHz | Yes |  |
| 12.5 kHz | Yes | Analogue technology |
| 6.25 kHz | No |  |
| Duplexing | Simplex (one frequency) | Yes |  |
| Duplex (two frequencies) | No |  |

**4.4 Question 5**

Is there any interference case between UHF on-board vessel communication stations and other systems been reported in your country? If yes, please provide, in detail, information about the case and the solution

**Response from China:**

No harmful interference has been reported to the administration so far.

**Response from Japan:**

Japan is considering the interference regarding UHF on-board communication, and will make guideline on this issue until 1, January 2018.

**Response from New Zealand:**

The frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz are still used by land mobile services in New Zealand.

There were incidents in the past where land mobile services near coastal areas were affected by interference caused by on-board maritime communications.

To protect licensed terrestrial land mobile services in these frequencies, on-board maritime communications should not be in operation when vessels are within the pilotage areas defined in the Schedule to [Part 90 of the Maritime Rules](http://www.maritimenz.govt.nz/rules/part-90/) published by Maritime New Zealand, or within a radius of WGS84 co-ordinates:

1. 70 nautical miles from Longitude 174deg 46min East / Latitude 36deg 50min South. (Auckland)
2. 45 nautical miles from Longitude 174deg 45min East / Latitude 41deg 25min South. (Wellington)
3. 76 nautical miles from Longitude 172deg 49min East / Latitude 43deg 33min South. (Christchurch)

This condition is outlined in *General User Radio Licence for Maritime UHF On-Board Communications*.

New Zealand is also progressively transitioning land mobile services near coastal areas in the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz to other frequency bands due to the risk of co-channel interference caused by on-board maritime communications.

**Response from Iran:**

No interference case has been reported

**Response from Viet Nam:**

Not yet, So far.

**Response from Thailand:**

No harmful interference is reported.

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