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| --- | --- |
| **World Radiocommunication Conference (WRC-15)Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
|  |  |
|  | **Addendum 16 toDocument 62-E** |
|  | **16 October 2015** |
|  | **Original: Chinese** |
|  |
| China (People's Republic of) |
| Proposals for the work of the conference |
|  |
| Agenda item 1.16 |

1.16 to consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Resolution **360** **(WRC‑12)**;

Introduction

Based on the studies performed during this study period, China has developed the following proposals for addressing respectively the four issues contained in the CPM Report under agenda item 1.16.

Issue A

– To identify the channels 2027 and 2028 of RR Appendix 18 for the application-specific message (ASM) not necessary for the safety of navigation and ensure protection of AIS1, AIS2, 2027 and 2028 by appropriate actions including not allowing ships to transmit on channels 2078, 2019, 2079 and 2020.

– To modify Note *m)* in Appendix 18 for ensuring protection of channels AIS1, AIS2, 2027 and 2028.

Issue B

– To identify the channels 24, 84, 25 and 85 for the terrestrial component of the VDE.

Issue C

– To identify a secondary allocation for the maritime mobile-satellite service (MMSS) (Earth-to-space) on the VDES channels 1024, 1084, 1025, 1085, 1026, 1086, 2027 and 2028. It also identifies a secondary allocation for the MMSS (space-to-Earth) on the VDES channels 2024, 2084, 2025, 2085, 2026 and 2086. To ensure protection of mobile and fixed services, it is proposed that a new pfd mask be introduced in a new footnote to RR Article 5. To ensure protection of the nearest frequency band allocated to the radio astronomy service (RAS), modifications of RR No. 5.208A and No. 5.208B are proposed.

Issue D

– To provide a regional VDES solution, utilizing channels 80, 21, 81, 22, 82, 23 and 83.

Proposals

MOD CHN/62A16/1

APPENDIX 18 (REV.WRC‑12)

Table of transmitting frequencies in the
VHF maritime mobile band

(See Article 52)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Channeldesignator | Notes | Transmittingfrequencies (MHz) | Inter-ship | Port operations and ship movement | Publiccorres-pondence |
| From ship stations | From coast stations | Single frequency | Two frequency |
| 60 | *m)* | 156.025 | 160.625 |  | x | x | x |
| 01 | *m)* | 156.050 | 160.650 |  | x | x | x |
| 61 | *m)* | 156.075 | 160.675 |  | x | x | x |
| 02 | *m)* | 156.100 | 160.700 |  | x | x | x |
| 62 | *m)* | 156.125 | 160.725 |  | x | x | x |
| 03 | *m)* | 156.150 | 160.750 |  | x | x | x |
| 63 | *m)* | 156.175 | 160.775 |  | x | x | x |
| 04 | *m)* | 156.200 | 160.800 |  | x | x | x |
| 64 | *m)* | 156.225 | 160.825 |  | x | x | x |
| 05 | *m)* | 156.250 | 160.850 |  | x | x | x |
| 65 | *m)* | 156.275 | 160.875 |  | x | x | x |
| 06 | *f)* | 156.300 |  | x |  |  |  |
| 2006 | *r)* | 160.900 | 160.900 |  |  |  |  |
| 66 | *m)* | 156.325 | 160.925 |  | x | x | x |
| 07 | *m)* | 156.350 | 160.950 |  | x | x | x |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 18 | *m)* | 156.900 | 161.500 |  | x | x | x |
| 78 | *t), u), v)* | 156.925 | 161.525 |  | x | x | x |
| 1078 |  | 156.925 | 156.925 |  | x |  |  |
| 2078 | *t), u), v)* | 161.525 | 161.525 |  | x |  |  |
| 19 | *t), u), v)* | 156.950 | 161.550 |  | x | x | x |
| 1019 |  | 156.950 | 156.950 |  | x |  |  |
| 2019 | *t), u), v)* | 161.550 | 161.550 |  | x |  |  |
| 79 | *t), u), v)* | 156.975 | 161.575 |  | x | x | x |
| 1079 |  | 156.975 | 156.975 |  | x |  |  |
| 2079 | *t), u), v)* | 161.575 | 161.575 |  | x |  |  |
| 20 | *t), u), v)* | 157.000 | 161.600 |  | x | x | x |
| 1020 |  | 157.000 | 157.000 |  | x |  |  |
| 2020 | *t), u), v)* | 161.600 | 161.600 |  | x |  |  |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 27 | *z)* | 157.350 | 161.950 |  |  | x | x |
| 1027 | *z)* | 157.350 | 157.350 |  | x |  |  |
| 2027 | *z)* | 161.950 | 161.950 |  |  |  |  |
| 87 | *z)* | 157.375 | 157.375 |  | x |  |  |
| 28 | *z)* | 157.400 | 162.000 |  |  | x | x |
| 1028 | *z)* | 157.400 | 157.400 |  | x |  |  |
| 2028 | *z)* | 162.000 | 162.000 |  |  |  |  |
| 88 | *z)* | 157.425 | 157.425 |  | x |  |  |
| ... | ... | ... | ... | ... | ... | ... | ... |

MOD CHN/62A16/2

*m)* These channels may be operated as single frequency channels, subject to coordination with affected administrations. Administrations should take appropriate actions, including not allowing the upper legs of these channels to transmit from ships, to prevent blocking of the reception of the channels AIS 1, AIS 2, 2027 and 2028.     (WRC‑15)

**Reasons:** Studies demonstrate that voice transmissions from the upper legs of these channels could also cause blocking of the reception of AIS 1 and AIS 2.

MOD CHN/62A16/3

*t)* In Regions 1 and 3, the existing duplex channels 78, 19, 79 and 20 can continue to be assigned. These channels may be operated as single-frequency channels, subject to coordination with affected administrations. Administrations should take appropriate actions, including not allowing channels 2078, 2019, 2079 and 2020 to transmit from ships, to prevent blocking of the reception of the channels AIS 1, AIS 2, 2027 and 2028.    (WRC‑15)

**Reasons:** To seek a possible better method of protecting AIS and ASM applications, while in the meantime using the frequency bands of Appendix 18 in more efficient and flexible ways.

MOD CHN/62A16/4

*z)* These channels may be used for possible testing of future AIS applications without causing harmful interference to, or claiming protection from, existing applications and stations operating in the fixed and mobile services.

 From 1 January 2019, the channels 27 and 28 are split into four simplex channels. The upper legs, 2027 and 2028, respectively designated as ASM 1 and ASM 2, are used for non-navigation ASM (application specific messages) as described in the most recent version of Recommendation ITU‑R M.[VDES]. The lower legs, 1027 and 1028, are used as simplex channels for port operations and ship movement.

 The channels 2027 and 2028 are also allocated to the maritime mobile-satellite service (Earth-to-space) for the reception of ASM messages from ships, as described in the most recent version of Recommendation ITU‑R M.[VDES], in which they are denominated respectively as SAT Up1 and SAT Up2.     (WRC‑15)

**Reasons:** To designate frequency bands for the ASM application.

MOD CHN/62A16/5

APPENDIX 18 (REV.WRC‑12)

Table of transmitting frequencies in the
VHF maritime mobile band

(See Article 52)

…/…

| Channeldesignator | Notes | Transmittingfrequencies (MHz) | Inter-ship | Port operations and ship movement | Publiccorres-pondence |
| --- | --- | --- | --- | --- | --- |
| From ship stations | From coast stations | Single frequency | Two frequency |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 24 | *w), ww), x), AAA)* | 157.200 | 161.800 |  | x | x | x |
| 1024 | *BBB)* | 157.200 |  |  |  |  |  |
| 2024 | *CCC)* | 161.800 | 161.800 | x |  |  |  |
| 84 | *w), ww), x),AAA)* | 157.225 | 161.825 |  | x | x | x |
| 1084 | *BBB)* | 157.225 |  |  |  |  |  |
| 2084 | *CCC)* | 161.825 | 161.825 | x |  |  |  |
| 25 | *w), ww), x), AAA)* | 157.250 | 161.850 |  | x | x | x |
| 1025 | *BBB)* | 157.250 |  |  |  |  |  |
| 2025 | *CCC)* | 161.850 | 161.850 | x |  |  |  |
| 85 | *w), ww), x), AAA)* | 157.275 | 161.875 |  | x | x | x |
| 1085 | *BBB)* | 157.275 |  |  |  |  |  |
| 2085 | *CCC)* | 161.875 | 161.875 | x |  |  |  |
| 26 | *w), ww), x)* | 157.300 | 161.900 |  | x | x | x |
| 1026 | *BBB)* | 157.300 |  |  |  |  |  |
| 2026 | *CCC)* | 161.900 | 161.900 | x |  |  |  |
| 86 | *w), ww), x)* | 157.325 | 161.925 |  | x | x | x |
| 1086 | *BBB)* | 157.325 |  |  |  |  |  |
| 2086 | *CCC)* | 161.925 | 161.925 | x |  |  |  |
| ... | ... | ... | ... | ... | ... | ... | ... |

**Reasons:** Introduction of the VDES in RR Appendix 18 as follows:

VDE 1 lower legs (channels 1024, 1084, 1025 and 1085) are ship-shore VDE.

VDE 1 upper legs (channels 2024, 2084, 2025 and 2085) are shore-ship and ship-ship VDE.

SAT Up3 (channels 1024, 1084, 1025, 1085, 1026 and 1086) is a ship-satellite VDE uplink.

SAT Downlink (channels 2024, 2084, 2025, 2085, 2026 and 2086) is the satellite-ship VDE downlink.

NOC CHN/62A16/6

**Notes referring to the Table**

*General notes*

Notes *a)* to *e)*

NOC CHN/62A16/7

*Specific notes*

Notes *f)* to *s)*

MOD CHN/62A16/8

*w)* In Regions 1 and 3:

 Until 1 January 2017, the frequency bands 157.025-157.325 MHz and 161.625-161.925 MHz (corresponding to channels: 80, 21, 81, 22, 82, 23, 83, 24, 84, 25, 85, 26, and 86 ) may be used for new technologies, subject to coordination with affected administrations. Stations using these channels or frequency bands for new technologies shall not cause harmful interference to, or claim protection from, other stations operating in accordance with Article **5**.

 From 1 January 2017, the frequency bands 157.025‑157.175 MHz and 161.625-161.775 MHz (corresponding to channels: 80, 21, 81, 22, 82, 23 and 83) are identified for the utilization of the digital systems described in the most recent version of Recommendation ITU‑R M.1842. These frequency bands could also be used for analogue modulation described in the most recent version of Recommendation ITU‑R M.1084 by an administration that wishes to do so, subject to not claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations.

 From 1 January 2017, the frequency bands 157.200‑157.325 MHz and 161.800-161.925 MHz (corresponding to channels: 24, 84, 25, 85, 26, 86) are identified for the utilization of the VHF Data Exchange System (VDES) described in the most recent version of Recommendation ITU‑R M.[VDES].     (WRC‑15)

**Reasons:** The date of 1 January 2017 has been defined by WRC-12.

NOC CHN/62A16/9

*ww)*

ADD CHN/62A16/10

*AAA)* From 1 January 2019, the channels 24, 84, 25 and 85 may be merged in order to form a unique duplex channel with a bandwidth of 100 kHz in order to operate the VDES described in the most recent version of Recommendation ITU‑R M.[VDES].     (WRC‑15)

**Reasons:** The merging of these channels will permit a better data rate for the VDE terrestrial component.

ADD CHN/62A16/11

*BBB)* From 1 January 2019, the combination of the channels 1024, 1084, 1025, 1085, 1026 and 1086, which are also allocated to the maritime mobile-satellite service (Earth-to-space), shall be used for the reception of VDES messages from ships as described in the most recent version of Recommendation ITU‑R M.[VDES].     (WRC‑15)

**Reasons:** The channels are identified for the satellite uplink of the VDES.

ADD CHN/62A16/12

*CCC)* From 1 January 2019, the combination of the channels 2024, 2084, 2025, 2085, 2026 and 2086, which are also allocated to the maritime mobile-satellite service (space-to-Earth), shall be used for the reception of VDES messages from satellites as described in the most recent version of Recommendation ITU‑R M.[VDES], in which this combination is denominated as SAT downlink.     (WRC‑15)

**Reasons:** The channels are identified for the satellite downlink of the VDES.

NOC CHN/62A16/13

Notes *x)* and *y)*

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD CHN/62A16/14

148-223 MHz

|  |
| --- |
| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 156.8375-157.1875FIXEDMOBILE except aeronauticalmobile | 156.8375-157.1875 FIXED MOBILE |
| 5.226 |  5.226 |
| 157.1875-157.3375FIXEDMOBILE except aeronauticalmobile Maritime mobile-satellite (Earth-to-space) | 157.1875-157.3375 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) |
| 5.226 ADD 5.226A |  5.226 ADD 5.226A |
| 157.3375-161.7875FIXEDMOBILE except aeronauticalmobile | 157.3375-161.7875 FIXED MOBILE |
| 5.226 |  5.226 |
| **161.7875-161.9375**FIXEDMOBILE except aeronauticalmobileMaritime mobile-satellite (space-to-Earth) MOD 5.208A MOD 5.208B | **161.7875-161.9375** FIXED MOBILE Maritime mobile-satellite (space-to-Earth) MOD 5.208A MOD 5.208B |
| 5.226 ADD5.226B |  5.226 ADD5.226B |
| **161.9375**-161.9625FIXEDMOBILE except aeronauticalmobileMaritime mobile-satellite (Earth-to-space) | **161.9375**-161.9625 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) |
| 5.226 ADD 5.226A |  5.226 ADD 5.226A |
| 161.9625-161.9875FIXEDMOBILE except aeronauticalmobileMobile-satellite (Earth-to-space) 5.228F | 161.9625-161.9875AERONAUTICAL MOBILE (OR)MARITIME MOBILEMOBILE-SATELITE (Earth-to-space) | 161.9625-161.9875MARITIME MOBILEAeronautical mobile (OR) 5.228EMobile-satellite (Earth-to-space) 5.228F |
| 5.226 5.228A 5.228B | 5.228C 5.228D | 5.226 |
| 161.9875-162.0125FIXEDMOBILE except aeronauticalmobileMaritime mobile-satellite (Earth-to-space) | 161.9875-162.0125 FIXED MOBILE Maritime mobile-satellite (Earth-to-space) |
| 5.226 ADD 5.226A 5.229 |  5.226 ADD 5.226A |

ADD CHN/62A16/15

5.226A The use of the frequency bands 157.1875-157.3375 MHz, 161.9375-161.9625 MHz and 161.9875-162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix **18**.     (WRC‑15)

ADD CHN/62A16/16

5.226B The use of the frequency band 161.7875-161.9375 MHz by the maritime mobile-satellite (space-to-Earth) service is limited to the systems which operate in accordance with Appendix **18**.

The power flux-density at the Earth’s surface produced by emissions from a maritime mobile-satellite service space station operating in the frequency band 161.7875-161.9375 MHz shall not exceed the following mask in dB(W/(m2 · 4 kHz)):

 −149 + 0.16 \* θ° 0° ≤ θ < 45°

 −142 + 0.53 \* (θ° − 45°) 45° ≤ θ < 60°

 −134 + 0.1 \* (θ° − 60°) 60° ≤ θ ≤ 90°

where θis the angle of arrival of the incident wave above the horizontal plane, in degrees.     (WRC‑15)

**Reasons:** The above modifications of RR Article 5 identify an MMSS allocation uplink and downlink for the VHF Data Exchange System which is described in preliminary draft new Recommendation ITU‑R M.[VDES].

MOD CHN/62A16/17

5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz, 400.15-401 MHz and for the maritime-mobile-satellite service (space-to-Earth) in the band 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. The threshold levels of interference detrimental to the radio astronomy service are shown in the relevant ITU‑R Recommendation.     (WRC-15)

**Reasons:** The frequency range 161.7875-161.9375 MHz is a new allocation to the maritime mobile-satellite service (space-to-Earth). To ensure protection of the RAS, this frequency range has to be added to RR No. 5.208A.

MOD CHN/62A16/18

5.208B[[1]](#footnote-1)\* In the bands:

 137-138 MHz,
 387-390 MHz,
 161.7875-161.9375 MHz,
 400.15-401 MHz,
 1 452-1 492 MHz,
 1 525-1 610 MHz,
 1 613.8-1 626.5 MHz,
 2 655-2 690 MHz,
 21.4-22 GHz,

Resolution **739** **(Rev.WRC-15)** applies.     (WRC-15)

MOD CHN/62A16/19

RESOLUTION 739 (Rev.WRC-07)

Compatibility between the radio astronomy service and the active space services in certain adjacent and nearby frequency bands

ANNEX 1 TO RESOLUTION 739 (Rev.WRC-07)

Unwanted emission threshold levels

TABLE 1-2

epfd thresholds(1) for unwanted emissions from all space stations of a non-GSO satellite system
at a radio astronomy station

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Space service | Space serviceband | Radio astronomyband | Single dish, continuum observations | Single dish, spectral line observations | VLBI | Condition of application: the API is received by the Bureau following the entry into force of the Final Acts of: |
| epfd(2) | Reference bandwidth | epfd(2) | Reference bandwidth | epfd(2) | Reference bandwidth |
| **(MHz)** | **(MHz)** | **(dB(W/m2))** | **(MHz)** | **(dB(W/m2))** | **(kHz)** | **(dB(W/m2))** | **(kHz)** |
| MSS (space-to-Earth) | 137-138 | 150.05-153 | −238 | 2.95 | NA | NA | NA | NA | WRC-07 |
| MMSS (space-to-Earth) | 161.7875-161.9375 | 150.05-153 | −238 | 2.95 | NA | NA | NA | NA | WRC-15 |
| MSS (space-to-Earth) | 387-390 | 322-328.6 | −240 | 6.6 | −255 | 10 | −228 | 10 | WRC-07 |
| MSS (space-to-Earth) | 400.15-401 | 406.1-410 | −242 | 3.9 | NA | NA | NA | NA | WRC-07 |
| MSS (space-to-Earth) | 1 525-1 559 | 1 400-1 427 | −243 | 27 | −259 | 20 | −229 | 20 | WRC-07 |
| RNSS (space-to-Earth)(3) | 1 559-1 610 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC‑07 |
| MSS (space-to-Earth) | 1 525-1 559 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC-07 |
| MSS (space-to-Earth) | 1 613.8-1 626.5 | 1 610.6-1 613.8 | NA | NA | −258 | 20 | −230 | 20 | WRC-03 |
| NA: Not applicable, measurements of this type are not made in this band.(1) These epfd thresholds should not be exceeded for more than 2% of time.(2) Integrated over the reference bandwidth with an integration time of 2 000 s.(3) This Resolution does not apply to current and future assignments of the radionavigation-satellite system GLONASS/GLONASS-M in the band 1 559-1 610 MHz, irrespective of the date of reception of the related coordination or notification information, as appropriate. The protection of the radio astronomy service in the 1 610.6‑1 613.8 MHz band is ensured and will continue to be in accordance with the bilateral agreement between the Russian Federation, the notifying administration of the GLONASS/GLONASS-M system, and IUCAF, and subsequent bilateral agreements with other administrations. |

NOC CHN/62A16/20

APPENDIX 5 (REV.WRC‑12)

Identification of administrations with which coordination is to be effected or
agreement sought under the provisions of Article 9

MOD CHN/62A16/21

APPENDIX 18 (REV.WRC-15)

Table of transmitting frequencies in the
 VHF maritime mobile band

(See Article **52**)

…/…

| Channeldesignator | Notes | Transmittingfrequencies (MHz) | Inter-ship | Port operations and ship movement | Publiccorres-pondence |
| --- | --- | --- | --- | --- | --- |
| From ship stations | From coast stations | Single frequency | Two frequency |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 80 | *w), y), xx)* | 157.025 | 161.625 |  | x | x | x |
| 1080 | *w), y), xx)* | 157.025 | 157.025 | x | x |  |  |
| 2080 | *w), y), xx)* | 161.625 | 161.625 | x | x |  |  |
| 21 | *w), y), xx)* | 157.050 | 161.650 |  | x | x | x |
| 1021 | *w), y), xx)* | 157.050 | 157.050 | x | x |  |  |
| 2021 | *w), y), xx)* | 161.650 | 161.650 | x | x |  |  |
| 81 | *w), y), xx)* | 157.075 | 161.675 |  | x | x | x |
| 1081 | *w), y), xx)* | 157.075 | 157.075 | x | x |  |  |
| 2081 | *w), y), xx)* | 161.675 | 161.675 | x | x |  |  |
| 22 | *w), y), xx)* | 157.100 | 161.700 |  | x | x | x |
| 1022 | *w), y), xx)* | 157.100 | 157.100 | x | x |  |  |
| 2022 | *w), y), xx)* | 161.700 | 161.700 | x | x |  |  |
| 82 | *w), x), y)* | 157.125 | 161.725 |  | x | x | x |
| 1082 | *w), x), y)* | 157.125 | 157.125 | x | x |  |  |
| 2082 | *w), x), y)* | 161.725 | 161.725 | x | x |  |  |
| 23 | *w), x), y), xxx)* | 157.150 | 161.750 |  | x | x | x |
| 1023 | *w), x), y), xxx)* | 157.150 | 157.150 | x | x |  |  |
| 2023 | *w), x), y), xxx)* | 161.750 | 161.750 | x | x |  |  |
| 83 | *w), x), y), xxx)* | 157.175 | 161.775 |  | x | x | x |
| 1083 | *w), x), y), xxx)* | 157.175 | 157.175 | x | x |  |  |
| 2083 | *w), x), y), xxx)* | 161.775 | 161.775 | x | x |  |  |
| ... | *...* | ... | ... | ... | ... | ... | ... |

NOC CHN/62A16/22

**Notes referring to the Table**

*General notes*

Notes *a)* to *e)*

NOC CHN/62A16/23

*Specific notes*

Notes *f)* to *z)*

ADD CHN/62A16/24

*xx)* Assignable for wideband digital system operation using multiple 25 kHz contiguous channels.     (WRC‑15)

ADD CHN/62A16/25

*xxx)* Assignable for 50 kHz bandwidth digital system operation using two 25 kHz contiguous channels.     (WRC‑15)

**Reasons:** The channels are identified for regional use of the VDES.

SUP CHN/62A16/26

RESOLUTION 360 (WRC‑12)

Consideration of regulatory provisions and spectrum allocations for
enhanced Automatic Identification System technology applications
and for enhanced maritime radiocommunication

**Reasons:** It is proposed to suppress Resolution **360 (WRC-12)** since it will become superfluous after the studies are completed, and the identification of frequencies in order to enhance maritime radiocommunication has been made by WRC-15.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \* This provision was previously numbered as No. 5.347A. It was renumbered to preserve the sequential order. [↑](#footnote-ref-1)