

ATTACHMENT 1
to FCC Public Notice DA 10-1408

**Recommendations approved at
28 July 2010 Meeting of
the Advisory Committee for
the 2012 World Radiocommunication Conference**

Maritime Aeronautical and Radar Services

WAC Informal Working Group (IWG)-1

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.14: *to consider requirements for new applications in the radiolocation service and review allocations or regulatory provisions for implementation of the radiolocation service in the range 30-300 MHz, in accordance with Resolution 611 (WRC-07)*

Background Information: Resolution 611 (WRC-07) asks WRC-12 to determine if any new radiolocation service allocations or applications in a portion of 30-300 MHz, with bandwidth no larger than 2 MHz, are compatible with existing services and applications in these bands. The Resolution recognizes that it is important to ensure radiolocation radars can be operated compatibly with the existing primary services having allocations in the portions of the VHF band. The ITU-R has studied technical characteristics, protection criteria, and other factors to determine whether radiolocation systems can operate compatibly with systems operating in accordance with the Table of Frequency Allocations in services in the 30-300 MHz frequency range.

Based on contributions to ITU meetings and other regional groups, it appears that the primary range of interest is 154-156 MHz for a new radar allocation for space object detection purposes.

The 30-300 MHz band is allocated to and used by a wide variety of services, including the fixed, mobile, aeronautical mobile (R), aeronautical radionavigation, broadcasting, and amateur services, as well as a range of space services. A review of the FCC's licensing database for the frequency band 150-174 MHz band shows over 176,000 active licenses. In the 154-156 MHz band alone, there are over 70,000 active licenses. The United States also has a large number of LMR systems operating in portions of the VHF band that are not part of the FCC licensing database. This frequency band has favorable propagation which allows implementation of systems with fewer base stations and hence a lower overall cost. Additionally, the maritime mobile service utilizes frequencies immediately above 156 MHz, and there are space service allocations in the 137-138 MHz, 148-149.9 MHz and 149.9-150.05 MHz bands.

Contributions to ITU meetings have not persuasively demonstrated compatibility with primary services in or adjacent to the 154-156 MHz range, nor are future contributions likely to demonstrate compatibility with primary services elsewhere in the range 30-300 MHz. Further, space object detection is already accommodated in the worldwide harmonized radiolocation allocation at 420-450 MHz. The UHF band is more suitable for this purpose because of a lower relative likelihood of transmissions being refracted back toward the earth during ionospheric disturbances.

Proposal:

ARTICLE 5

Frequency Allocations

Section IV – Table of Frequency Allocations

NOC USA/AI1.14/1

Reason: No change to the Radio Regulations is necessary or desirable. The application of space object detection is already accommodated at a more suitable frequency range, and compatibility with primary services has not been demonstrated.

SUP USA/AI1.14/2

RESOLUTION 611 (WRC-07)

~~Use of a portion of the VHF band by the radiolocation service~~

Reason: Consequential to completion of Agenda Item 1.14 at WRC-12.

WAC Informal Working Group (IWG)-1

Modifications to NTIA's Proposal on
Agenda Item 1.9

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.9: to revise frequencies and channeling arrangements of Appendix 17 to the Radio Regulations, in accordance with Resolution 351 (Rev.WRC-07), in order to implement new digital technologies for the maritime mobile service

Background Information: The introduction of new data exchange technologies¹ in the HF maritime mobile service is providing an alternative to narrow-band direct printing (NBDP) technology. According to the International Maritime Organization, current NBDP applications include maritime safety information (MSI) broadcasts, ship reporting, weather forecasts and business communications (e.g. fishing fleets). Since alternative data communication technologies for these functions are available, NBDP equipment use is in rapid decline. However, NBDP telegraphy remains essential for distress communications in the polar regions (sea area A4) where geostationary satellites cannot provide coverage and other terrestrial means of communication are unreliable.

The global maritime community intends to improve efficiency and flexibility in the HF maritime mobile service spectrum by designating certain assignable frequencies in Appendix 17 to data transmissions using new data exchange technologies. This proposal would:

- 1) significantly reduce the number of NBDP frequencies to those actually used for NBDP telegraphy and the GMDSS/NBDP core frequencies (Appendix 15);
- 2) allow for the use of the current NBDP bands for digital data transmissions, subject to not claiming protection from nor causing harmful interference to other stations in the maritime mobile service using NBDP technology until December 31, 2014;
- 3) make new digital data transmissions primary in the current NBDP bands effective January 1, 2015, though stations could use NBDP technology subject to not claiming protection from nor causing harmful interference to stations in the maritime mobile service using digital data transmissions;
- 4) re-designate the frequencies currently assignable to stations using facsimile, wide-band telegraphy and Morse telegraphy A1A/A1B to stations using data transmission without a transition period;
- 5) neither specify nor limit the bandwidth of new digital transmissions;

¹ See Recommendation ITU-R M.1798 *Characteristics of HF radio equipment for the exchange of digital data and electronic mail in the maritime mobile service*

- 6) allow stations using wide-band telegraphy or Morse telegraphy A1A/A1B to continue on their currently assigned frequencies subject to not claiming protection from nor causing harmful interference to stations in the maritime mobile service using digital data transmissions;
- 7) not modify Appendix 25 radiotelephony bands, but would allow for the use of digitally modulated emissions ~~digital data transmissions~~ in the radiotelephony bands in accordance with the Appendix 25 allotment plan; and
- 8) provide some flexibility to administrations in portions of the bands 4 MHz, 6 MHz and 8 MHz to assign new simplex radiotelephony frequencies in accordance with No. 52.177, subject to not claiming protection from stations in the maritime mobile service using digital data transmissions.

Proposal:

MOD USA/AI 1.9/1

APPENDIX 17 (REV.WRC-0312)

Frequencies and channelling arrangements in the high-frequency bands for the maritime mobile service

(See Article 52)

PART A – Table of subdivided bands (WRC-0312)

In the Table, where appropriate¹, the assignable frequencies in a given band for each usage are:

- indicated by the lowest and highest frequency, in heavy type, assigned in that band;
- regularly spaced, the number of assignable frequencies (*f*.) and the spacing in kHz being indicated in italics.

¹ Within the non-shaded boxes.

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 063	6 200	8 195	12 230	16 360	18 780	22 000	25 070
Frequencies assignable to ship stations for oceanographic data transmission <i>c)</i>	4 063.3 to 4 064.8 <i>6 f.</i> <i>0.3 kHz</i>							
Limits (kHz)	4 065	6 200	8 195	12 230	16 360	18 780	22 000	25 070
Frequencies assignable to ship stations for telephony, duplex operation <i>a) i) hh)</i>	4 066.4 to 4 144.4 <i>27 f.</i> <i>3 kHz</i>	6 201.4 to 6 222.4 <i>8 f.</i> <i>3 kHz</i>	8 196.4 to 8 292.4 <i>33 f.</i> <i>3 kHz</i>	12 231.4 to 12 351.4 <i>41 f.</i> <i>3 kHz</i>	16 361.4 to 16 526.4 <i>56 f.</i> <i>3 kHz</i>	18 781.4 to 18 823.4 <i>15 f.</i> <i>3 kHz</i>	22 001.4 to 22 157.4 <i>53 f.</i> <i>3 kHz</i>	25 071.4 to 25 098.4 <i>10 f.</i> <i>3 kHz</i>
Limits (kHz)	4 146	6 224	8 294	12 353	16 528	18 825	22 159	25 100

**Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz
allocated exclusively to the maritime mobile service (continued)**

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 146	6 224	8 294	12 353	16 528	18 825	22 159	25 100
Frequencies assignable to ship stations and coast stations for telephony, simplex operation <i>a) hh)</i>	4 147.4 to 4 150.4 <i>2 f.</i> <i>3 kHz</i>	6 225.4 to 6 231.4 <i>3 f.</i> <i>3 kHz</i>	8 295.4 to 8 298.4 <i>2 f.</i> <i>3 kHz</i>	12 354.4 to 12 366.4 <i>5 f.</i> <i>3 kHz</i>	16 529.4 to 16 547.4 <i>7 f.</i> <i>3 kHz</i>	18 826.4 to 18 844.4 <i>7 f.</i> <i>3 kHz</i>	22 160.4 to 22 178.4 <i>7 f.</i> <i>3 kHz</i>	25 101.4 to 25 119.4 <i>7 f.</i> <i>3 kHz</i>
Limits (kHz)	4 152	6 233	8 300	12 368	16 549	18 846	22 180	25 121
Frequencies assignable to ship stations for wide-band telegraphy, facsimile and special transmission systems <i>Frequencies assignable to ship stations for data transmission p) ee)</i>	4 154 to 4 170 <i>5 f.</i> <i>4 kHz</i>	6 235 to 6 259 <i>7 f.</i> <i>4 kHz</i>	8 302 to 8 338 <i>10 f.</i> <i>4 kHz</i>	12 370 to 12 418 <i>13 f.</i> <i>4 kHz</i>	16 551 to 16 615 <i>17 f.</i> <i>4 kHz</i>	18 848 to 18 868 <i>6 f.</i> <i>4 kHz</i>	22 182 to 22 238 <i>15 f.</i> <i>4 kHz</i>	25 123 to 25 159 <i>10 f.</i> <i>4 kHz</i>
Limits (kHz)	4 172	6 261	8 340	12 420	16 617	18 870	22 240	25 161.25
Frequencies assignable to ship stations for oceanographic data transmission <i>c) p)</i>		6 261.3 to 6 262.5 <i>5 f.</i> <i>0.3 kHz</i>	8 340.3 to 8 341.5 <i>5 f.</i> <i>0.3 kHz</i>	12 420.3 to 12 421.5 <i>5 f.</i> <i>0.3 kHz</i>	16 617.3 to 16 618.5 <i>5 f.</i> <i>0.3 kHz</i>		22 240.3 to 22 241.5 <i>5 f.</i> <i>0.3 kHz</i>	
Limits (kHz)	4 172	6 262.75	8 341.75	12 421.75	16 618.75	18 870	22 241.75	25 161.25

Frequencies assignable to ship stations for data transmission <i>d) p) aa) bb) cc)</i>								
Limits (kHz)	<u>4 175.25</u>	<u>6 266.25</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>
Frequencies (paired) assignable to ship stations for narrow-band direct-printing (NBDP) telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK <i>d) j) m) p)</i>	4 172.56 to 4 181.578 <i>±85 f.</i> <i>0.5 kHz</i>	6 263.5 to 6 275.568.5 <i>±25 f.</i> <i>0.5 kHz</i>						
Limits (kHz)	<u>4 178.25</u>	<u>6 268.75</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>
Frequencies assignable to ship stations for data transmission <i>d) p) aa) bb) cc)</i>								
Limits (kHz)	<u>4 181.75</u>	<u>6 275.75</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service (continued)

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	<u>4 181.75</u>	<u>6 275.75</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>
Calling frequencies assignable to ship stations for A1A or A1B Morse telegraphy-Frequencies assignable to ship stations for data transmission <i>g) p) m)</i>								
Limits (kHz)	<u>4 186.75</u>	<u>6 280.75</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>
Frequencies (paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK Frequencies assignable to ship stations for data transmission <i>d) m) p) aa) bb) cc)</i>		6 281 to 6 284.5 <i>±8 f.</i> <i>0.5 kHz</i>						
Limits (kHz)	<u>4 186.75</u>	<u>6 284.75</u>	<u>8 341.75</u>	<u>12 421.75</u>	<u>16 618.75</u>	<u>18 870</u>	<u>22 241.75</u>	<u>25 161.25</u>
Working frequencies assignable to ship stations	4 187 to	6 285 to	8 342 to	12 422 to	16 619 to		22 242 to	25 161.5 to

for A1A or A1B Morse telegraphy <i>e) f)</i> <u>Frequencies assignable to ship stations for data transmission</u> <i>m) p)</i>	4 202 <i>31 f.</i> <i>0.5 kHz</i>	6 300 <i>31 f.</i> <i>0.5 kHz</i>	8 365.5 <i>48 f.</i> <i>0.5 kHz</i>	12 476.5 <i>110 f.</i> <i>0.5 kHz</i>	16 683 <i>129 f.</i> <i>0.5 kHz</i>		22 279 <i>75 f.</i> <i>0.5 kHz</i>	25 171 <i>20 f.</i> <i>0.5 kHz</i>
Limits (kHz)	4 202.25	6 300.25	8 365.75	12 476.75	16 683.25	18 870	22 279.25	25 171.25
Calling frequencies assignable to ship stations for A1A or A1B Morse telegraphy. Frequencies assignable to ship stations for data transmission <i>q) p) m)</i>								
Limits (kHz)	4 202.25	6 300.25	8 370.75	12 476.75	16 683.25	18 870	22 284.25	25 172.75
Working frequencies assignable to ship stations for A1A or A1B Morse telegraphy. Frequencies assignable to ship stations for data transmission <i>e) f) p) m)</i>			8 371 to 8 376 <i>11 f.</i> <i>0.5 kHz</i>					
Limits (kHz)	4 202.25	6 300.25	8 376.25	12 476.75	16 683.25	18 870	22 284.25	25 172.75

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service (*continued*)

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 202.25	6 300.25	8 376.25	12 476.75	16 683.25	18 870	22 284.25	25 172.75
Frequencies (paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 bauds for FSK and 200 bauds for PSK <i>d) j) m) p)</i>			8 376.5 to 8 396.78.5 <i>40.5 f.</i> <i>0.5 kHz</i>	12 477 to 12 549.5 <i>146 f.</i> <i>0.5 kHz</i>	16 683.5 to 16 733.5 <i>101 f.</i> <i>0.5 kHz</i>	18 870.5 to 18 892.5 <i>45 f.</i> <i>0.5 kHz</i>	22 284.5 to 22 351.5 <i>135 f.</i> <i>0.5 kHz</i>	25 173 to 25 192.5 <i>40 f.</i> <i>0.5 kHz</i>
Limits (kHz)	<u>4 202.25</u>	<u>6 300.25</u>	<u>8 378.75</u>	<u>12 476.75</u>	<u>16 683.25</u>	<u>18 870</u>	<u>22 284.25</u>	<u>25 172.75</u>
<u>Frequencies assignable to ship stations for data transmission</u> <i>d) p) aa) bb) cc)</i>								
Limits (kHz)	<u>4 202.25</u>	<u>6 300.25</u>	<u>8 396.25</u>	<u>12 517.25</u>	<u>16 693.25</u>	<u>18 892.75</u>	<u>22 351.75</u>	<u>25 192.75</u>
Frequencies (paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 bauds for FSK and 200 bauds for PSK <i>d) j)</i>				<u>12 517.5</u> to <u>12 522</u> <i>10 f.</i> <i>0.5 kHz</i>	<u>16 693.5</u> to <u>16 696.5</u> <i>7 f.</i> <i>0.5 kHz</i>			

Limits (kHz)	4 202.25	6 300.25	8 396.25	12 522.25	16 696.75	18 892.75	22 351.75	25 192.75
Frequencies assignable to ship stations for data transmission <i>d) p) aa) bb) cc)</i>								
Limits (kHz)	4 202.25	6 300.25	8 396.25	12 549.75	16 733.75	18 892.75	22 351.75	25 192.75
Calling frequencies assignable to ship stations for A1A or A1B Morse telegraphy. Frequencies assignable to ship stations for data transmission <i>m) p)</i>								
Limits (kHz)	4 202.25	6 300.25	8 396.25	12 554.75	16 738.75	18 892.75	22 351.75	25 192.75
Frequencies (paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 bauds for FSK and 200 bauds for PSK Frequencies assignable to ship stations for data transmission <i>aa) bb) cc) d) m) p)</i>				12 555 to 12 559.5 10 f. 0.5 kHz	16 739 to 16 784.5 92 f. 0.5 kHz			
Limits (kHz)	4 202.25	6 300.25	8 396.25	12 559.75	16 784.75	18 892.75	22 351.75	25 192.75

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service (continued)

Limits (kHz)	4 202.25	6 300.25	8 396.25	12 559.75	16 784.75	18 892.75	22 351.75	25 192.75
Frequencies (non paired) assignable to ship stations for NBDP telegraphy and data transmission systems at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK and for A1A or A1B Morse telegraphy (working) <i>b) p) dd) m)</i>	4 202.5 to 4 207 10 f. 0.5 kHz	6 300.5 to 6 311.5 23 f. 0.5 kHz	8 396.5 to 8 414 36 f. 0.5 kHz	12 560 to 12 576.5 34 f. 0.5 kHz	16 785 to 16 804 39 f. 0.5 kHz	18 893 to 18 898 11 f. 0.5 kHz	22 352 to 22 374 45 f. 0.5 kHz	25 193 to 25 208 31 f. 0.5 kHz
Limits (kHz)	4 207.25	6 311.75	8 414.25	12 576.75	16 804.25	18 898.25	22 374.25	25 208.25
Frequencies assignable to ship stations for digital selective calling <i>k) l)</i>	4 207.5 to 4 209 4 f. 0.5 kHz	6 312 to 6 313.5 4 f. 0.5 kHz	8 414.5 to 8 416 4 f. 0.5 kHz	12 577 to 12 578.5 4 f. 0.5 kHz	16 804.5 to 16 806 4 f. 0.5 kHz	18 898.5 to 18 899.5 3 f. 0.5 kHz	22 374.5 to 22 375.5 3 f. 0.5 kHz	25 208.5 to 25 209.5 3 f. 0.5 kHz
Limits (kHz)	4 209.25	6 313.75	8 416.25	12 578.75	16 806.25	18 899.75	22 375.75	25 210

Limits (kHz)	4 209.25	6 313.75	8 416.25	12 578.75	16 806.25	19 680.25	22 375.75	26 100.25
Frequencies assignable to coast stations for data transmission <i>n) o) p) aa) bb) cc)</i>								
Limits (kHz)	<u>4 213.75</u>	<u>6 317.75</u>	<u>8 416.25</u>	<u>12 619.75</u>	<u>16 816.75</u>	<u>19 703.25</u>	<u>22 443.75</u>	<u>26 120.75</u>
Frequencies (paired) assignable to coast stations for NBDP and data transmission systems, at speeds not exceeding 100 Bd for FSK and 200 Bd for PSK <i>d) n) o) p)</i>	4 209.514 to 4 219.515.5 <i>204 f.</i> <i>0.5 kHz</i>	6 314.8 to 6 330.19.5 <i>34 f.</i> <i>0.5 kHz</i>	8 416.5 to 8 436.18.5 <i>405 f.</i> <i>0.5 kHz</i>	12.579.620 to 12.656.5 <u>12 624</u> 12 659 f. <i>0.5 kHz</i>	16 806.517 to 16 902.5 <u>16 819.5</u> 1936 f. <i>0.5 kHz</i>	19 680.5 to 19 703 <i>46 f.</i> <i>0.5 kHz</i>	22 376 to 22 443.5 <i>136 f.</i> <i>0.5 kHz</i>	26 100.5 to 26 120.5 <i>41 f.</i> <i>0.5 kHz</i>
Limits (kHz)	<u>4 215.75</u>	<u>6 319.75</u>	<u>8 418.75</u>	<u>12 624.25</u>	<u>16 819.75</u>	<u>19 703.25</u>	<u>22 443.75</u>	<u>26 120.75</u>
Frequencies assignable to coast stations for data transmission <i>d) p) aa) bb) cc)</i>								
Limits (kHz)	4 219.25	6 330.75	8 436.25	12 656.75	16 902.75	19 703.25	22 443.75	26 120.75
Frequencies assignable to coast stations for digital selective calling <i>l)</i>	4 219.5 to 4 220.5 <i>3 f.</i> <i>0.5 kHz</i>	6 331 to 6 332 <i>3 f.</i> <i>0.5 kHz</i>	8 436.5 to 8 437.5 <i>3 f.</i> <i>0.5 kHz</i>	12 657 to 12 658 <i>3 f.</i> <i>0.5 kHz</i>	16 903 to 16 904 <i>3 f.</i> <i>0.5 kHz</i>	19 703.5 to 19 704.5 <i>3 f.</i> <i>0.5 kHz</i>	22 444 to 22 445 <i>3 f.</i> <i>0.5 kHz</i>	26 121 to 26 122 <i>3 f.</i> <i>0.5 kHz</i>
Limits (kHz)	4 221	6 332.5	8 438	12 658.5	16 904.5	19 705	22 445.5	26 122.5

Table of frequencies (kHz) to be used in the band between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service (end)

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 221	6 332.5	8 438	12 658.5	16 904.5	19 705	22 445.5	26 122.5
Frequencies assignable to coast stations for wide-band and A1A or A1B Morse telegraphy, facsimile, special and data transmission systems and direct-printing telegraphy systems <i>m) p) ee) ff)</i>								
Limits (kHz)	4 351	6 501	8 707	13 077	17 242	19 755	22 696	26 145
Frequencies assignable to coast stations for telephony, duplex operation <i>a) hh)</i>	4 352.4 to 4 436.4 <i>29 f.</i> <i>3 kHz</i>	6 502.4 to 6 523.4 <i>8 f.</i> <i>3 kHz</i>	8 708.4 to 8 813.4 <i>36 f.</i> <i>3 kHz</i>	13 078.4 to 13 198.4 <i>41 f.</i> <i>3 kHz</i>	17 243.4 to 17 408.4 <i>56 f.</i> <i>3 kHz</i>	19 756.4 to 19 798.4 <i>15 f.</i> <i>3 kHz</i>	22 697.4 to 22 853.4 <i>53 f.</i> <i>3 kHz</i>	26 146.4 to 26 173.4 <i>10 f.</i> <i>3 kHz</i>

Limits (kHz)	4 438	6 525	8 815	13 200	17 410	19 800	22 855	26 175
--------------	-------	-------	-------	--------	--------	--------	--------	--------

NOC USA/AI 1.9/2

Note *a)*

Reasons: Maintains the frequency bands dedicated for the radiotelephony simplex operation.

SUP USA/AI 1.9/3

Note *b)*

Reasons: After the entry into force date of 1 January 2015, Section III, Part B this note will no longer be required.

NOC USA/AI 1.9/4

Note *c)* and *d)*.

Reasons: Maintains frequencies for transmission of oceanographic data and paired frequencies for NBDP.

SUP USA/AI 1.9/5

Note *e)*

Reasons: Maintains frequencies for ship stations using A1A Morse telegraphy not travelling faster than 40 Bd

SUP USA/AI 1.9/6

Note *f)*

Reasons: Part B, Section V is proposed for suppression.

SUP USA/AI 1.9/7

Note *g)*

Reasons: Part B, Section IV is proposed for suppression.

NOC USA/AI 1.9/8

Note *i)* to *l)*

Reasons: Maintains paired frequencies for digital selective calling.

MOD USA/AI 1.9/9

Note *m*) Frequencies from these frequency bands may also be used for A1A or A1B Morse telegraphy ~~(working) (see Part B, Section H)~~. subject to not claiming protection from other stations, in the maritime mobile service .

Reasons: Assigns additional frequencies for A1A or A1B Morse telegraphy subject to protection of the maritime mobile service using new digital technologies.

NOC USA/AI 1.9/10

Note *n*) and *o*)

Reasons: No change is proposed to frequencies used for maritime safety information (MSI) and Navigational Telex (NAVTEX).

MOD USA/AI 1.9/11

Note *p*) These sub-bands, except the frequencies referred to in Notes *i*), *j*), *n*) and *o*), may be used for for maritime mobile service (e.g. as described in Recommendation ITU-R M.1798)~~the initial testing and the possible future introduction within the maritime mobile service of new digital technologies. Stations using these sub-bands for this purpose shall not cause harmful interference to, and shall not claim protection from, other stations operating in accordance with Article 5. .~~

Reasons: Implements the channels for new digital technologies in the frequency bands designated for wide-band telegraphy, and facsimile without transition a period.

ADD USA/AI 1.9/12

Note *aa*) Until 1 January 2015, these bands may be used by narrow-band direct printing applications.

Reasons: Allows for transition period for frequencies employing NBDP to transmission of new digital technologies subject to not causing interference into NBDP.

ADD USA/AI 1.9/13

Note *bb*) After 1 January 2015, these bands may be used by narrow-band direct printing applications by the administrations, subject to not claiming protection from other stations, .

Reasons: Allows for continued use of NBDP after transition date subject to not claiming protection from the maritime mobile service.

ADD USA/AI 1.9/14

Note *cc*) After 1 January 2015, the administrations who make assignments to stations using affected administrations.

Reasons: Removes the use of single channel NBDP after 1 January 2015 to allow the introduction of new HF data exchange technologies into the maritime mobile service.

ADD USA/AI 1.9/15

Note dd) These bands may be used by narrow-band direct printing applications by the administrations, subject to not claiming protection from other stations:

Reasons: Removes the use of single channel NBDP after 1 January 2015 to allow the introduction of new HF data exchange technologies into the maritime mobile service.

ADD USA/AI 1.9/16

Note ee) Frequencies from these bands may be used for wide-band telegraphy, facsimile, A1A Morse telegraphy and special data transmission on condition that harmful interference is not caused to and protection is not claimed from stations, in the maritime mobile .

Reasons: Removes the use of single channel NBDP after 1 January 2015 to allow the introduction of new HF data exchange technologies into the maritime mobile service.

ADD USA/AI 1.9/17

Note ff) The bands 4 345 – 4 351 kHz, 6 495 – 6 501 kHz, 8 701 – 8 707 kHz may be used for simplex (single-sideband) telephone operation (regularly spaced by 3 kHz), in accordance with provision No. 52.177, subject to not claiming protection from other stations in the maritime mobile service .

Reasons: Removes the use of single channel NBDP after 1 January 2015 to allow the introduction of new HF data exchange technologies into the maritime mobile service.

ADD USA/AI 1.9/18

Note gg) When assigning frequencies on the bands 4 202.25 – 4 207.25 kHz, 6 300.25 – 6 311.75 kHz, 8 396.25 – 8 414.25 kHz, 12 559.75 – 12 576.75 kHz and 16 784.75 – 16 804.25 kHz, administrations shall take all necessary precautions to not cause interference on the DSC distress frequencies 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12.577 kHz and 16 804.5 kHz.

Reasons: Provides protection for DSC distress frequencies.

ADD USA/AI 1.9/19

Note hh) The bands 4 066.4 – 4 150.4 kHz, 4 352.4 – 4 436.4 kHz, 6 201.4 – 6 231.4 kHz, 6 502.4 – 6 523.4 kHz, 8 196.4 – 8 298.4 kHz, 8 708.4 – 8 813.4 kHz, 12 231.4 – 12 366.4 kHz, 13 078.4 – 13 198.4 kHz, 16 361.4 – 16 574.4 kHz, 17 243.4 – 17 408.4 kHz, 18 781.4 – 18 844.4 kHz, 19 756.4 – 19 798.4 kHz, 22 001.4 – 22 178.4 kHz, 22 697.4 – 22 853.4 kHz, 25 071.4 – 25 119.4 kHz, 26 146.4 – 26 173.4 kHz may be used, in accordance with Appendix 25

allotment plan, for digitally modulated emissions on condition that harmful interference is not caused to and protection is not claimed from other stations in the maritime mobile service using radiotelephony operations. The digitally modulated emissions may be used provided that their occupied bandwidth does not exceed 2 800 Hz, it is situated wholly within one frequency channel and the peak envelope power of coast stations does not exceed 10 kW and the peak envelope power of ship stations does not exceed 1.5 kW for per channel.

for digital data transmissions on condition that harmful interference is not caused to and protection is not claimed from other stations, using radiotelephony operations, in the maritime mobile service.

Reasons: Allows additional use for digitally modulated emission ~~digital data transmissions~~ in the RR Appendix 25 bands.

PART B – Channelling arrangements (WRC-0712)

Section II – Narrow-band direct-printing telegraphy (paired frequencies)

MOD USA/AI 1.9/20

TABLE 17a

Table of frequencies for two-frequency operation by coast stations (kHz)

Reasons: Providing a table number will help distinguish this table from new the table (17b) that comes into force after January 1, 2015.

NOC USA/AI 1.9/21

Channel No.	4 MHz band ¹		6 MHz band ³		8 MHz band ⁴	
	Transmit	Receive	Transmit	Receive	Transmit	Receive

Reasons: There are no proposed changes to the table (17a).

ADD USA/AI 1.9/22

TABLE 17b (WRC-12)
Table of frequencies for two-frequency operation by coast stations (kHz)

<u>Channel No.</u>	<u>4 MHz band</u> ¹		<u>6 MHz band</u>		<u>8 MHz band</u>	
	<u>Transmit</u>	<u>Receive</u>	<u>Transmit</u>	<u>Receive</u>	<u>Transmit</u>	<u>Receive</u>
<u>1</u>					<u>8 376.5</u> ²	<u>8 376.5</u> ²
<u>2</u>					<u>8 417</u>	<u>8 377</u>
<u>3</u>					<u>8 417.5</u>	<u>8 377.5</u>
<u>4</u>					<u>8 418</u>	<u>8 378</u>
<u>5</u>					<u>8 418.5</u>	<u>8 378.5</u>
<u>6</u>						
<u>7</u>						
<u>8</u>	<u>4 214</u>	<u>4 176</u>	<u>6 318</u>	<u>6 266.5</u>		
<u>9</u>	<u>4 214.5</u>	<u>4 176.5</u>	<u>6 318.5</u>	<u>6 267</u>		
<u>10</u>	<u>4 215</u>	<u>4 177</u>	<u>6 319</u>	<u>6 267.5</u>		
<u>11</u>	<u>4 177.5</u> ²	<u>4 177.5</u> ²	<u>6 268</u> ²	<u>6 268</u> ²		
<u>12</u>	<u>4 215.5</u>	<u>4 178</u>	<u>6 319.5</u>	<u>6 268.5</u>		
<u>13</u>						

¹ Ship stations may use the coast station receiving frequencies for transmitting A1A or A1B Morse telegraphy (working), with the exception of channel No. 11 (see Appendix 15).

² For the conditions of use of this frequency, see Article 31.

TABLE 17b (end)

<u>Channel No.</u>	<u>12 MHz band</u>		<u>16 MHz band</u>	
	<u>Transmit</u>	<u>Receive</u>	<u>Transmit</u>	<u>Receive</u>
<u>21</u>			<u>16 817</u>	<u>16 693.5</u>
<u>22</u>			<u>16 817.5</u>	<u>16 694</u>
<u>23</u>			<u>16 818</u>	<u>16 694.5</u>
<u>24</u>			<u>16 695</u> ²	<u>16 695</u> ²
<u>25</u>			<u>16 818.5</u>	<u>16 695.5</u>
<u>26</u>			<u>16 819</u>	<u>16 696</u>
<u>27</u>			<u>16 819.5</u>	<u>16 696.5</u>
<u>82</u>	<u>12 620</u>	<u>12 517.5</u>		
<u>83</u>	<u>12 620.5</u>	<u>12 518</u>		
<u>84</u>	<u>12 621</u>	<u>12 518.5</u>		
<u>85</u>	<u>12 621.5</u>	<u>12 519</u>		
<u>86</u>	<u>12 622</u>	<u>12 519.5</u>		
<u>87</u>	<u>12 520</u> ²	<u>12 520</u> ²		
<u>88</u>	<u>12 622.5</u>	<u>12 520.5</u>		
<u>89</u>	<u>12 623</u>	<u>12 521</u>		
<u>90</u>	<u>12 623.5</u>	<u>12 521.5</u>		
<u>91</u>	<u>12 624</u>	<u>12 522</u>		

Reasons: New Table 17b allows for introduction of new HF data exchange technologies into the maritime mobile service. Numbering for the other table (17a) in Section II Part B helps distinguish between the two tables in Appendix 17.

SUP USA/AI 1.9/23

**Section III – Narrow-band direct-printing telegraphy
(non-paired frequencies)**

Reasons: After the entry into force date of 1 January 2015, this section will no longer be needed and will be suppressed. Article 59 references the new Resolution XYZ.NBDP, which abrogates this suppression.

SUP USA/AI 1.9/24

Section IV – Morse telegraphy (calling)

Reasons: Removes the use of Morse telegraphy to allow the introduction of new HF data exchange technologies into the maritime mobile service.

SUP USA/AI 1.9/25

Section V – Morse telegraphy (working)

Reasons: Removes the use of Morse telegraphy to allow the introduction of new HF data exchange technologies into the maritime mobile service.

ADD USA/AI 1.9/26

RESOLUTION XYZ.NBDP (WRC-12)

**Application and abrogation of certain provisions of the Radio Regulations
as revised by WRC-12**

The World Radiocommunication Conference (Geneva, 2012),

considering

- a) that this conference has adopted a partial revision to the Radio Regulations (RR) in accordance with its terms of reference which will enter into force on 1 January 2014;
- b) that some of the provisions, as amended by this conference, need to apply as of a later date;
- c) that as a general rule, new and revised Resolutions and Recommendations enter into force at the time of signing of the Final Acts of a conference;
- d) that as a general rule, Resolutions and Recommendations which a WRC has decided to suppress are abrogated at the time of the signing of the Final Acts of the conference.

resolves

- 1 that, as of 1 January 2015, the following provisions of the RR, which are suppressed by this Conference, shall be abrogated: Table 17a of Appendix 17, Section III of Part B of Appendix 17;
- 2 that, as of 1 January 2015, the following provisions, as established by this Conference, shall enter into force: Table 17b of Appendix 17;

Reasons: The Resolution XYZ.NBDP allows for provisions in Appendix 17 to enter into force on the agreed date of 1 January, 2015.

MOD USA/AI 1.9/27

ARTICLE 59

**Entry into force and provisional application
of the Radio Regulations (WRC-2000)**

- 59.XX The other provisions of these Regulations, as revised by WRC-12, shall enter into force on 1 January 2014, with the following exceptions: (WRC-12)
- 59.YY – the revised provisions for which other effective dates of application are stipulated in Resolutions:
XYZ.NBDP (WRC-12)

Reasons: This reference to Resolution XYZ.NBDP allows for the transition date for the entry into force of provisions in Appendix 17 and suppress other provisions.

SUP USA/AI 1.9/28

RESOLUTION 351 (Rev.WRC-07)

Review of the frequency and channel arrangements in the HF bands allocated to the maritime mobile service contained in Appendix 17 with a view to improving efficiency through the use of new digital technology by the maritime mobile service

Reasons: All of the work related to this Resolution is complete.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda 1.4 To consider, based on the results of ITU-R studies, any further regulatory measures to facilitate introduction of new aeronautical mobile (R) service(AM (R)S) systems in the bands 112-117.975 MHz, 960-1164 MHz and 5000-5030 MHz in accordance with Resolution 413 (Rev. WRC-07), 417 (WRC-07, and 420 WRC-07).

Background

WRC-07 adopted this agenda item in accordance with the Resolutions referenced above. WP-5B is the lead ITU-R Working Party for this agenda item. It has carried out studies in accordance with provisions of these resolutions. One of the main focuses of these studies has been to determine the amount of spectrum required to support the newly-proposed service.

The RNSS allocations 5000-5030 MHz were newly allocated to the Radio-Navigation Satellite Service (RNSS) at WRC-03. They were part of a set of actions that increased the amount of spectrum available to the RNSS. Since WRC-03, there has been a large increase in the ITU filings for RNSS bands. Further, the anticipated launch of new RNSS systems will completely use all available RNSS allocations at lower frequencies. In addition there has been a large increase in the number and type of services provided by the RNSS. Therefore, the availability of the 5 GHz RNSS allocations has increased in importance as the basis for providing for the future growth of the RNSS. The importance of the availability of the 5 GHz RNSS allocations has been recognized by the provisions of Resolution **420**.

ITU-R Working Party (SG 5B) completed its studies under Agenda Item 1.4 consistent with Resolution **420**. With regard to the 5010-5030 MHz band, given the available information on AM(R)S operational environment and RNSS signal characteristics there was not sufficient information to conclude on sharing studies therefore no allocation to AM(R)S is proposed in this band. Based on these studies the US proposes to a NOC in the 5010-5030 MHz band. The U.S. may have a companion proposal under this agenda item regarding the 5000-5010 MHz band.

Proposal:

ARTICLE 5
Frequency Allocations

Section IV – Table of Frequency Allocations

USA/AI 1.4/1
NOC

Allocation to services		
Region 1	Region 2	Region 3
5 010-5 030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367	

Reason: To ensure protection of RNSS systems.

WAC Informal Working Group (IWG)-1

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.10: to examine the frequency allocation requirements with regard to operation of safety systems for ships and ports and associated regulatory provisions, in accordance with Resolution **357 (WRC-07)**

Background Information:

Simplex Use of Duplex Channels

The Radio Regulations Board approved a Rule of Procedure after WRC-07 regarding simplex use in Appendix **18**, effectively implementing this part of the enclosed proposal. WRC-07 revised Appendix **18** to allow simplex use of channels 01, 07, 19, 20, 21, 60, 66, 78, 79, 80, and 81 subject to coordination with affected administrations (Note *m*). However, WRC-07 omitted placing an "x" in the "Single frequency" column against affected channels in Appendix **18**, thereby unintentionally omitting this from the Radio Regulations.

Expansion of optional simplex use of duplex channels (add more "x" designations to duplex channels) in Appendix **18** will provide further benefits to maritime radiocommunications by relieving current congestion in the VHF maritime mobile bands in accordance with Recommendation ITU-R M.1084-4. Report ITU-R M.2010-1, a study on efficiency in the VHF maritime mobile band, concluded that this spectrum efficiency option expands the number of usable communications channels with the minimum of compatibility issues. The analogue VHF radio on board vessels that travel internationally would have access to both the original two-frequency channels and their single-frequency derivatives, thus allowing port operations on two or single frequency channels.

Channels for E-Navigation (e-Nav)

Designating in Appendix **18** six channels for E-Navigation (eNAV)* data exchange responds to the International Maritime Organization's (IMO) E-Navigation initiatives for future VHF data exchange. Technical studies are ongoing within the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) E-Navigation Committee with close coordination between IALA and the ITU-R. Recommendation ITU-R M.1842-1 provides examples of potential VHF E-Navigation systems and recommends the use of Appendix **18** channels for the exchange of data for E-Navigation to support future digital technologies in the maritime mobile service VHF bands. The ITU-R summarizes E-Navigation spectrum requirements in a liaison statement to IALA (5B/417 Annex 28) and proposes continued cooperative efforts between the two maritime organizations. Adding a new Note *s*) to the table of Appendix **18** and to the section "Notes referring to the Table" supports the identification six channels (24, 25, 26, and 27) for potential E-Navigation systems.

* eNAV – From IMO: "E-Navigation is the harmonised creation, collection, integration, exchange and presentation of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment".

Protection of Channels AIS 1 and AIS 2

Protecting the Automatic Identification System channels (AIS 1 and AIS 2) from harmful interference would ensure the future safety of maritime mobile radiocommunications for these channels. Report ITU-R M.2122 “EMC assessment of shore-based electronic navigation (eNAV) infrastructure and new draft standards for data exchange in the VHF maritime mobile band (156-174 MHz)” describes the susceptibility of AIS 1 and AIS 2 to interference from the adjacent duplex channels. This Report also provides technical guidelines for the electromagnetic compatibility between AIS and systems that use channels 27 and 28. Thus, modifying Note *c*) in the section “Notes referring to the Table” of Appendix 18 is necessary for protecting AIS.

Non-Application of Channel Interleaving

Recommendation ITU-R M.1084-4 describes the advantages of increased spectrum efficiency by channel interleaving 12.5 kHz channels with 25 kHz channels. The current Appendix 18 excludes maritime mobile service safety channels from 12.5 kHz channel interleaving (See Note *e*)). By modifying Note *e*) in the section “Notes referring to the Table” of Appendix 18, the non-application of channel interleaving extends to the exclusion of AIS 1 and AIS 2, and the proposed channels for E-Navigation discussed above.

Long-Range Detection of AIS

Taking into account the studies performed within ITU-R, especially the Report ITU-R M.2169 and the Recommendation ITU-R M. 1371-4, it is proposed to identify the channels 75 and 76 of the Appendix 18 for the purpose of improving the satellite detection of AIS Message 27. To do so, a primary allocation to the mobile satellite service (Earth-to-space) is proposed via a footnote in regards to the frequencies of channels 75 and 76 in Article 5. Recommendation ITU-R M.1371-3 provides technical and operational characteristics for designing systems intended for long range detection of AIS. Additionally, modifying Note *n*) in the section “Notes referring to the Table” of Appendix 18 identifies the use of AIS for long-range detection for channels 75 and 76 and ensures the protection of these channels from harmful interference.

These revisions will provide spectrum for the implementation of the latest version of Recommendation ITU-R M.1371-4 for improved satellite detection, increasing reliability for greater probability of vessel tracking. The frequencies used are already allocated to the Maritime mobile service

A primary allocation in the maritime mobile service and a secondary allocation for aeronautical mobile service in the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz are proposed. A secondary allocation to the mobile-satellite service (Earth-to-space) in the Table of Frequency Allocations (Article 5) is also proposed. Consequentially, Footnote No. 5.227A will be suppressed. This will provide additional protection for AIS frequencies which are used for search and rescue, safety of navigation, ship movement and tracking of vessels, as well as use by search and rescue aircraft authorized by Appendix 18 of the Radio Regulations and the latest version of Recommendation ITU-R M.1371-4.

Proposal:

MOD USA/AI 1.10/1

Article 5 of the Radio Regulations

Section IV – Table of Frequency Allocations

148-223 MHz

Allocation to services		
Region 1	Region 2	Region 3
156.7625-156.8375	MARITIME MOBILE (distress and calling) 5.111 5.226 <u>ADD 5.XYZ</u>	
156.8375-161.9625 FIXED MOBILE except aeronautical mobile 5.226, 5.229	156.8375-161.9625 FIXED MOBILE 5.226, 5.230, 5.231, 5.232	
161.9625-161.9875	MARITIME MOBILE Mobile-satellite (Earth-to-space) Aeronautical mobile (OR) 5.NNN	
161.9875-162.0125 FIXED MOBILE except aeronautical mobile 5.226, 5.229	161.9875-162.0125 FIXED MOBILE 5.226	
162.0125-162.0375	MARITIME MOBILE Mobile-satellite (Earth-to-space) Aeronautical mobile (OR) 5.229, 5.NNN	
156.8375- 162.0375-174 FIXED MOBILE except aeronautical mobile 5.226 5.227A-5.229	162.0375-174 FIXED MOBILE 5.226 5.227A-5.230 5.231 5.232	

ADD USA/AI 1.10/2

5.XYZ

Additional allocation: the bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a primary basis for the reception of automatic identification system (AIS) emissions, broadcasting long range AIS message (Message 27), as specified in the most recent version of Recommendation ITU-R M.1371, from stations operating in the maritime-mobile service (see Appendix 18). (WRC-12)

Reasons: Proposed changes reflect the allocation of 156.775MHz and 156.825 MHz to the required services in Article 5 to support maritime safety and vessel tracking requirements.

5.NNN

The use of the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile satellite service (Earth-to-space) and the aeronautical mobile (OR) service is limited to automatic identification system (AIS) emissions operating in accordance with Appendix 18. (WRC-12)

SUP 5.227A USA/AI 1.10/3

MOD USA/AI 1.10/4

APPENDIX 18 (Rev.WRC-~~07~~12)

**Table of transmitting frequencies in the VHF
maritime mobile band**

(See Article 52)

NOTE A – For assistance in understanding the Table, see Notes *a*) to *q*) below. (WRC-07)

NOTE B – The Table below defines the channel numbering for maritime VHF communications based on 25 kHz channel spacing and use of several duplex channels, ~~but~~ and also allows the simplex use of 12.5 kHz channel spacing duplex channels. The channel numbering for ~~12.5 kHz channels and the conversion of two frequency channels for~~ single-frequency operation of duplex channels shall be in accordance with Recommendations ITU-R M.493 and 1084 (Latest versions) ~~4 Annex 4, Tables 1 and 3.~~ (WRC-~~07~~12)

Reasons: Proposed changes to NOTE B will allow for more flexibility for simplex (single-channel) use of duplex channels.

MOD USA/AI 1.10/5

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
60	<i>m), o)</i>	156.025	160.625		<u>x</u>	x	x
01	<i>m), o)</i>	156.050	160.650		<u>x</u>	x	x
61	<i>m), o)</i>	156.075	160.675		x	x	x
02	<i>m), o)</i>	156.100	160.700		x	x	x
62	<i>m), o)</i>	156.125	160.725		x	x	x
03	<i>m), o)</i>	156.150	160.750		x	x	x
63	<i>m), o)</i>	156.175	160.775		x	x	x
04	<i>m), o)</i>	156.200	160.800		x	x	x
64	<i>m), o)</i>	156.225	160.825		x	x	x
05	<i>m), o)</i>	156.250	160.850		x	x	x
65	<i>m), o)</i>	156.275	160.875		x	x	x
06	<i>f)</i>	156.300		x			
66	<i>m), o)</i>	156.325	160.925		<u>x</u>	x	x
07	<i>m), o)</i>	156.350	160.950		<u>x</u>	x	x
67	<i>h)</i>	156.375	156.375	x	x		
08		156.400		x			
68		156.425	156.425		x		
09	<i>i)</i>	156.450	156.450	x	x		
69		156.475	156.475	x	x		
10	<i>h), q)</i>	156.500	156.500	x	x		
70	<i>f), j)</i>	156.525	156.525	Digital selective calling for distress, safety and calling			
11	<i>q)</i>	156.550	156.550		x		
71		156.575	156.575		x		
12		156.600	156.600		x		
72	<i>i)</i>	156.625		x			
13	<i>k)</i>	156.650	156.650	x	x		
73	<i>h), i)</i>	156.675	156.675	x	x		
14		156.700	156.700		x		
74		156.725	156.725		x		
15	<i>g)</i>	156.750	156.750	x	x		
75	<i>n)</i>	156.775	156.775		x		

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
16	<i>f)</i>	156.800	156.800	DISTRESS, SAFETY AND CALLING			
76	<i>n)</i>	156.825	156.825		x		
17	<i>g)</i>	156.850	156.850	x	x		
77		156.875		x			
18	<i>m)</i>	156.900	161.500		<u>x</u>	x	x
78	<i>m)</i>	156.925	161.525		<u>x</u>	x	x
19	<i>m)</i>	156.950	161.550		<u>x</u>	x	x
79	<i>m)</i>	156.975	161.575		<u>x</u>	x	x
20	<i>m)</i>	157.000	161.600		<u>x</u>	x	x
80	<i>m)</i>	157.025	161.625		<u>x</u>	x	x
21	<i>m)</i>	157.050	161.650		<u>x</u>	x	x
81	<i>m)</i>	157.075	161.675		<u>x</u>	x	x
22	<i>m)</i>	157.100	161.700		x	x	x
82	<i>m), o)</i>	157.125	161.725		x	x	x
23	<i>m), o)</i>	157.150	161.750		x	x	x
83	<i>m), o)</i>	157.175	161.775		x	x	x
24	<i>m), o, <u>s</u>)</i>	157.200	161.800		x	x	x
84	<i>m), o, <u>s</u>)</i>	157.225	161.825		x	x	x
25	<i>m), o, <u>s</u>)</i>	157.250	161.850		x	x	x
85	<i>m), o, <u>s</u>)</i>	157.275	161.875		x	x	x
26	<i>m), o, <u>s</u>)</i>	157.300	161.900		x	x	x
86	<i>m), o, <u>s</u>)</i>	157.325	161.925		x	x	x
27	<i>r)</i>	157.350	161.950			x	x
87		157.375	157.375		x		
28	<i>r)</i>	157.400	162.000			x	x
88		157.425	157.425		x		
AIS 1	<i>f), l), p)</i>	161.975	161.975				
AIS 2	<i>f), l), p)</i>	162.025	162.025				

Reasons: Proposed changes to the Table will allow for more flexibility for simplex (single-channel) use of duplex channels. Additional notes are added to identify channels for E-Navigation and protection of AIS 1 and AIS 2.

Notes referring to the Table

General notes

MOD USA/AI 1.10/6

- c) The channels of the present Appendix, ~~but preferably channel 28~~ and with the exception of channels 06, 13, 15, 16, 17, 70, 75 and 76, may be used for direct-printing telegraphy and data transmission, subject to special arrangement between interested and affected administrations.

Reasons: Proposed change reflects the need to protect AIS 1 and AIS 2 from adjacent band interference from channel 28.

MOD USA/AI 1.10/7

- e) Administrations may apply 12.5 kHz channel interleaving on a non-interference basis to 25 kHz channels, in accordance with the most recent version of Recommendation ITU-R M.1084, provided:
- it shall not affect the 25 kHz channels of the present Appendix maritime mobile distress and safety, AIS, and E-Navigation data exchange frequencies, especially the channels 06, 13, 15, 16, 17, ~~and 70, 24, 25, 26, 84, 85, 86, AIS 1 and AIS 2~~, nor the technical characteristics set forth in Recommendation ITU-R M.489-2 for those channels;
 - implementation of 12.5 kHz channel interleaving and consequential national requirements shall be subject to coordination with affected administrations. (WRC-07)

Reasons: Proposed changes to Note e) identify AIS and E-Navigation channels as additional channels requiring protection from channel interleaving.

MOD USA/AI 1.10/8

- n) The use of these channels (75 and 76) should be restricted to navigation-related communications only and all precautions should be taken to avoid harmful interference to channel 16, e.g. by limiting the output power to 1 W or by means of geographical separation. These channels are also allocated to the mobile-satellite service (Earth-to-space) for long range detection of AIS in accordance with recommendation ITU-R M.1371.

Reasons: Proposed change protects the channels intended to be used for long-range detection of AIS from harmful interference.

ADD USA/AI 1.10/9

r) When using these channels (27 and 28), all precautions should be taken to avoid harmful interference to AIS 1 and AIS 2. (WRC-12)

Reasons: Proposed change protects AIS 1 and AIS 2 from harmful interference.

ADD USA/AI 1.10/10

s) These channels are designated for the exchange of data for E-Navigation (operations of safety systems for ships and ports) in accordance with Recommendation ITU-R M.1842. (WRC-12)

Reasons: Proposed Note s) identifies channels for E-Navigation in Appendix 18.

Space Services

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

WRC-11 Agenda Item 1.11: to consider a primary allocation to the space research service (Earth-to-space) within the band 22.55-23.15, taking into account the results of ITU-R studies, in accordance with Resolution 753 (WRC-07)

Background Information:

To support the SRS missions in near Earth orbit, including missions in transit to the moon and at or near the moon, downlink (space-to-Earth) transmissions will operate in the 25.5-27.0 GHz SRS allocation. This 1.5 GHz wide downlink band will be used for both scientific data retrieval and voice/video communication with the Earth. However, there is a need for a companion uplink (Earth-to-space) band to provide the mission data, command and control links for these missions. Due to the potential for many concurrent exploration-related systems and the large bandwidth requirements of these systems, especially , it is envisioned that an uplink bandwidth of sufficient primary space research service frequency spectrum in the 22.55-23.15 GHz range will provide the space exploration initiatives adequate uplink (Earth-to-space) bandwidth capacity in a band that is paired with the inter-satellite service and thus is a reasonable companion to the primary space research service 25.5-27.0 GHz space-to-Earth band.

Resolution **753 (WRC-07)** calls for sharing studies between SRS (Earth-to-space) and the fixed, inter-satellite and mobile services in the band 22.55-23.15 GHz to determine appropriate criteria which will provide for sharing between a new SRS (Earth-to-space) allocation and the existing services in the 22.55-23.15 GHz band. These sharing studies have been initiated in ITU-R Working Party 7B, the responsible group for CPM studies in support of WRC-11 agenda item 1.11.

The CPM text for Agenda Item 1.11 has several Methods. Method B recognizes a protection criteria agreed in the ITU-R for the non -GSO ISS links operating in the band above 23.15 GHz. This criteria is proposed for inclusion in the Radio Regulations.

Proposal

**Article 5
Frequency Allocations**

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

MOD USA/1.11/1

22-24.75 GHz

Allocation to services		
Region 1	Region 2	Region 3
<u>22.55-22.85</u>	FIXED INTER-SATELLITE 5.338A MOBILE <u>SPACE RESEARCH SERVICE (Earth-to-Space) 5.ISS</u> 5.149	
<u>22.85-23.55</u>	FIXED INTER-SATELLITE 5.338A MOBILE 5.149	

Reason- This allocation proposal fulfills the requirements of the agenda item and ensures protection of all services in the allocation before the conference.

ADD USA/1.11/2

5.ISS The aggregated unwanted emission levels from all earth stations in the space research service in the band 22.55-22.85 GHz shall not exceed a power density of -215 dBW/Hz at the input to the non-GSO ISS satellite receiver, not to be exceeded for a fraction of time greater than 10^{-2} percent (0.01%) in the band 23.183-23.377 GHz.

Reason: to ensure protection of the operational ISS links operating in the band 22.15-23.55 GHz.

Regulatory Issues

**UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

Agenda Item 1.6: to review No. **5.565** of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution **950 (Rev.WRC 07)**, and to consider possible procedures for free-space optical-links, taking into account the results of ITU R studies, in accordance with Resolution **955 (WRC 07)**

Background Information: Agenda item 1.6 addresses two distinct issues. The content of this proposal addresses only the updating of No. **5.565** in accordance with Resolution **950 (Rev. WRC-07)**.

The Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations currently exist above 275 GHz, although an entry in the Table for the range 275-1 000 GHz contains a reference to No. **5.565**.

Resolution **950 (Rev. WRC-07)** calls for a re-examination of the frequency bands contained in No. **5.565** with a view to updating this footnote, including advice on the applications suitable for the range 275-3 000 GHz. Passive services such as the Earth exploration-satellite service (EESS), space research service (SRS), and radio astronomy service (RAS) already utilize portions of the 275-3 000 GHz range for scientific observation. Some of these operations measure spectral line and continuum emissions from space while others measure atmospheric and climate-related natural emissions from the Earth and its atmosphere. Resolution **950 (Rev. WRC-07)** resolves to review No. **5.565** to update the information on spectrum use in the frequency range 275-3 000 GHz by the passive services, but specifically excludes allocations in this range. Although the focus of the agenda item is spectrum use by passive services, it is important to recognize that this frequency range concurrently is used for experimentation with, and development of, an array of emerging active service applications.

ITU-R studies of current and projected scientific needs for passive use of the frequency range 275-3 000 GHz resulted in new recommendations and reports. These studies revealed a need to update No. **5.565** through the addition of some new bands of interest and the deletion of some existing bands. Technical factors strongly influence use of the range 275-3 000 GHz. First, the Earth's atmosphere absorbs signals at these frequencies, especially in the range 1 000-3 000 GHz where the atmosphere is nearly opaque. Second, antenna beamwidths are extremely narrow at such high frequencies.

Interference from non-geostationary satellites into terrestrial stations is highly unlikely due to the above factors and the speed of the spacecraft relative to Earth. With regard to geostationary satellites, coordination would resolve the potential interference from the unlikely scenario of transmissions with maximum antenna coupling and minimum propagation loss. As a result, passive and active services can share frequencies above 1 000 GHz without constraints.

Proposal:

ARTICLE 5
Frequency allocations

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

MOD USA/AI 1.6/1

5.565 A number of frequency bands in the frequency band range 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services applications. This frequency range also is used for experimentation with, and development of, various active service applications. In this band-frequency range 275-1 000 GHz a need has been identified for the following frequency bands for measurements by spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

- Earth exploration-satellite service (passive) and space research service (passive): 275-277286 GHz, 294296-306 GHz, 316313-334356 GHz, 342-349 GHz, 363361-365 GHz, 371369-389392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 442439-444467 GHz, 496477-506502 GHz, 523-527 GHz, 546538-568581 GHz, 624611-629630 GHz, 634-654 GHz, 659657-661692 GHz, 684-692 GHz, 713-718 GHz, 730729-732733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 851850-853854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, and 951-956 GHz, 968-973 GHz and 985-990 GHz.

In the frequency range 1 000-3 000 GHz, passive services may use any band segment for ground- and space-based experimentation without constraints on any other services operating in this range.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned 275-3 000 GHz frequency range band.

Reasons: Based on the studies performed, the list of EESS and SRS bands of interest in the range 275-1 000 GHz need to be updated in No. **5.565**. ITU-R studies have shown that unconstrained sharing between passive and active services in the frequency range 1 000-3 000 GHz is feasible; therefore passive services should have use of any band segment in this frequency range for experimentation.

SUP USA/AI 1.6/2

RESOLUTION 950 (Rev. WRC-07)
**Consideration of the use of the frequencies
between 275 and 3 000 GHz**

Reasons: Required studies have been completed. The resolution is no longer needed.

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

WRC-11 Agenda Item 7: *to consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: “Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks”, in accordance with Resolution 86 (Rev. WRC-07);*

Issue: Nos. **23.13**, **23.13A**, **23.13B** and **23.13C** of the Radio Regulations

Background information:

No. **23.13** and its sub-provisions deal with broadcasting-satellite service (BSS) systems which have the capability to serve other countries. No. **23.13** has been the subject of intense debate at many past WRCs. WRC-95 adopted Resolution **531 (WRC-95)**, which (through Section 5.3.1 of Annex 1) instructed the RRB to modify its Rule of Procedure for (then) **S23.13**. The instructions were very similar to the provisions **23.13A** and **23.13B** added by WRC-2000—an administration must comment within four months to object to its inclusion in the service area of a BSS network after its publication, and if no agreement is reached between the concerned administrations, then the service area would be modified to exclude the objecting administration’s territory, without changing the network’s coverage area. Non-commenting administrations were assumed to have no objection to inclusion in the service area (which is different from provision **23.13C** adopted subsequently by WRC-2000). Resolution **531 (WRC-95)** also maintained clear separation between agreements under **S23.13** and Article 4 of Appendix **30**.

At WRC-97, Resolution **536** was adopted, regarding the operation of broadcasting satellites serving other countries. It resolves “that, in addition to observing No. **S23.13/2674**, and before providing satellite broadcasting services to other administrations, administrations originating the services should obtain the agreement of those other administrations.” The United States took a reservation against this Resolution stating “that it disagrees with aspects of the resolution that would encourage administrations originating satellite broadcasting services to other administrations to obtain further agreement of administrations before providing such service.”

Finally, at WRC-2000, after extensive and contentious discussion, a balance was reached among the very different views regarding the issue. No. **23.13** was modified to include specific provisions—**23.13A**, **23.13B**, and **23.13C**—which detail how this provision is to be implemented in practice. Nos. **23.13A**, **23.13B** and **23.13C** were carefully crafted to describe the actions required if an agreement cannot be reached with an administration not wishing to be included in the BSS satellite’s service area. These provisions specifically require modification of a BSS satellite’s *service area*, which means the earth stations associated with the satellite network would not receive protection on the territory of the countries whose objection cannot be resolved. WRC-2000 also adopted Resolution **139**, regarding use of fixed-satellite service systems for the provision of direct-to-home television broadcasting. This short Resolution ultimately asks for the ITU-R to conduct studies of use of FSS allocations for DTH and to report to WRC-03 for possible inclusion in a future agenda. No action was taken at WRC-03 in this regard and WRC-07 since decided to suppress the Resolution.

It is worth noting that since WRC-2000, Nos. **23.13**, **23.13A**, **23.13B** and **23.13C** have not been touched, with no proposals from any administration to WRC-03 and -07 addressing these provisions, underscoring the fact that an appropriate balance between the concerns of administrations was achieved.

Recently there have been some speculations with regard to changes to No. **23.13** and its sub-provisions in several Working Parties of the ITU-R. One suggestion is that footnotes be added to the title of Article **23** stating that Section II of the Article applies to FSS transponders used for DTH transmissions, implying that No. **23.13** and its sub-provisions would apply to DTH FSS. Other suggested changes have been to modify Nos. **23.13B** and **23.13C** to be “consistent” with the wording of No. **23.13** itself. Such changes to **23.13B** and **23.13C** would require that the satellite’s physical “coverage area” be modified, contrary to the current requirement that its “service area” be modified. When these suggestions were raised in several Working Parties there was considerable opposition ,and little support.

There are serious issues associated with the suggested changes to No **23.13**. Firstly, the United States does not support any extension of No. **23.13** and its sub-provisions, or Article **23**, to other services or applications like direct-to-home FSS. No useful purpose would be served by abandoning the present distinction between the BSS and the FSS. Many applications are unique to only one of the services and these applications justify maintaining the distinction between them.

Further, there is no inconsistency between No. **23.13** and its sub-provisions. The wording of No. **23.13A** through **23.13C**, which describe how No. **23.13** is implemented in practice, was carefully chosen in order to reach agreement across many administrations with diverse views at WRC-2000. The United States does not support reopening the difficult discussions associated with No. **23.13** and its sub-provisions.

In addition, Nos. **23.13A**, **23.13B** and **23.13C** were carefully crafted to specifically require only the modification of a BSS satellite’s *service area*, recognizing that modification of a satellite’s *coverage area* is simply not technically feasible, either from the perspective of modifying a satellite’s antenna, or designing a satellite antenna to exclude one country’s territory when the satellite provides service to neighboring countries. Such proposals would have grave detrimental effects on the future of the satellite industry as satellites are inherently regional or international in nature.

Proposal:

ARTICLE 23

Broadcasting services

Section I – Broadcasting service

* * * * *

USA/7/1

NOC

Section II – Broadcasting-satellite service

23.13 § 4 In devising the characteristics of a space station in the broadcasting-satellite service, all technical means available shall be used to reduce, to the maximum, the radiation over the territory of other countries unless an agreement has been previously reached with such countries.

USA/7/2

NOC

23.13A If the Bureau receives an indication of a written agreement under No. **23.13**, it shall include reference to that agreement when the assignments to the system are recorded with reference to No. **23.13** in the Remarks column of the Master International Frequency Register or included in the Regions 1 and 3 List. (WRC-2000)

USA/7/3

NOC

23.13B If, within the four-month period following the publication of the Special Section for a broadcasting-satellite service (except sound broadcasting) network submitted for coordination under Article **9** or Appendix **30**, an administration informs the Bureau that all technical means have not been used to reduce the radiation over its territory, the Bureau shall draw the attention of the responsible administration to the comments received. The Bureau shall request the two administrations to make every effort possible in order to resolve the issue. Either administration may request the Bureau to study the matter and submit its report to the administrations concerned. If no agreement can be reached, then the Bureau shall delete the territory of the objecting administration from the service area without adversely affecting the rest of the service area and inform the responsible administration. (WRC-2000)

USA/7/4

NOC

23.13C If, after the four-month period mentioned above, an administration objects to remaining in the service area, the Bureau shall delete the territory of the objecting administration from the service area of the broadcasting-satellite service (except sound broadcasting) network concerned without adversely affecting the rest of the service area and inform the responsible administration. (WRC-2000)

Reasons: No. **23.13** has been a very contentious issue at several past WRCs. The difficult compromise reached at WRC-2000 (where Nos. **23.13A** thru **23.13C** were added to explain what responsibilities administrations and the Radiocommunications Bureau have under No. **23.13**) represents a delicate balance between the strongly differing views and should not be revisited. Nos. **23.13B** and **23.13C** were carefully drafted to require only modification of a satellite network's service area in the event of a continuing disagreement. Therefore, the United States is of the view that no action/modification is required on Nos. **23.13B** and **23.13C**.