

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE Maritime Advanced HF Data Services

Agenda Item 1.13: *taking into account Resolutions 729 (WRC-97), 351 (WRC-03) and 544 (WRC-03), to review the allocations to all services in the HF bands between 4 MHz and 10 MHz, excluding those allocations to services in the frequency range 7 000-7 200 kHz and those bands whose allotment plans are in Appendices 25, 26 and 27 and whose channelling arrangements are in Appendix 17, taking account of the impact of new modulation techniques, adapting control techniques and spectrum requirements for HF broadcasting.*

Background Information: This is a very broad agenda item, as there are multiple services allocated to the HF bands between 4 MHz and 10 MHz, including aeronautical mobile (OR), aeronautical mobile (R), amateur, broadcasting, fixed, maritime mobile and mobile services. Agenda item 1.13 covers three resolutions that deal with three separate issues. These issues are connected within the agenda item on the basis that they cover overlapping frequency ranges.

Issue 1: Resolution 351 under this agenda item addresses the introduction of new digital technology into the frequency and channel arrangements (Appendix 17) in the MF and HF bands allocated to the maritime mobile service. The required changes to Appendix 17 must be carefully addressed for this issue and should be addressed at the next world radiocommunication conference (WRC) to be held (2011/12). This requires modification of Resolution 351 to focus work in the SG process on identifying the required changes and how best to accomplish them within Appendix 17. In addition, WRC-07 needs to address the use of radiotelephony channels by emerging digital systems. To accomplish this, a proposed footnote has been developed for the radio telephony channels.

Issue 2: Resolution 544 under this agenda item addresses the introduction of additional allocations for the broadcasting service, limited to the 4-10 MHz band with additional restrictions for specific channelling plans associated with aeronautical and maritime mobile services. The U.S. supports the CITEL draft IAP calling for no additional allocation.

Issue 3: Resolution 729 under this agenda item addresses the introduction of adaptive HF systems for the fixed and mobile services in the 4-30 MHz band. Since such systems have been operating successfully for many years no change to Article 5 of the radio regulations are required. However, studies for this issue have uncovered a need for studies and potential change of the radio regulations to allow emerging HF technologies through use of wide-band HF systems in the fixed and mobile services.

Proposal:

USA/ /1 NOC APPENDIX 17

USA/ /2 MOD RESOLUTION 351 (WRC-03)

RESOLUTION 351 (WRC-~~03~~07)

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

The World Radiocommunication Conference (Geneva, ~~2003~~2007),

considering

- a) that the agenda of this Conference included consideration of the use of new digital technology in the maritime mobile service (MMS) in the MF and HF bands;
- b) that the introduction of new digital technology in the MMS shall not disrupt the distress and safety communications in the MF and HF bands including those established by the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended;
- c) that changes made in Appendix **17** should not prejudice the future use of these frequencies or the capabilities of systems or new applications required for use by the MMS;
- d) that the need to use new digital technologies in the MMS is growing rapidly;
- e) that the use of new digital technology on HF and MF frequencies allocated to the MMS will make it possible to better respond to the emerging demand for new services;
- f) that the HF bands allocated to the MMS for A1A Morse telegraphy are not used for this purpose and narrow-band direct-printing ~~are significantly under-~~ (NBDP) allocations are utilized only by a small number of low volume residual services at present;
- g) that there are new HF data exchange technologies capable of delivering MSI
- h) that the IMO supports the frequencies of Appendix **15**, concerning NBDP, be retained for the foreseeable future.
- gi) that the ITU Radiocommunication Sector is conducting ongoing studies to improve the efficient use of these bands,

noting

a) that different digital technologies have already been developed and are in use in the MF and HF bands in several radiocommunication services,

b) that new maritime HF data transfer protocols have already been developed to replace general narrow-band-direct-printing communications using Appendix 17 frequencies and mobile frequencies outside Appendix 17

noting also

that this conference has modified Appendix 17 to permit, ~~on a voluntary basis,~~ the use of various channels or bands identified in the MF and HF bands for ~~initial testing and future~~ the introduction of new digital technology,

resolves

1 that, in order to provide full worldwide interoperability of equipment on ships, there should be one technology, or more than one interoperable worldwide technology, ~~implemented under Appendix 17;~~ to serve the MMS.

2 that, as soon as the ITU-R studies are completed, a future competent conference should consider necessary changes to Appendix 17 to ~~enable~~ facilitate the use of new technology by the MMS,

invites ITU-R

to finalize studies currently ongoing:

- to identify future requirements of the MMS;
- to identify the technical characteristics necessary to facilitate use of digital systems in the MF and HF bands allocated to the ~~MMS~~ Mobile Service, taking into account any relevant ITU-R Recommendations;
- to identify the digital system(s) to be used in the MF/HF bands by the MMS;
- to identify any necessary modifications to the frequency table contained within Appendix 17
- to propose a timetable for the introduction of new digital technologies and any consequential changes to Appendix 17;
- to recommend how digital technologies can be introduced while ensuring compliance with distress and safety requirements,

instructs the Secretary-General

to bring this Resolution to the attention of the International Maritime Organization, the International Civil Aviation Organization, the International Association of Marine Aids to Navigation and Lighthouse Authorities and the Comité International Radio-Maritime.

Reasons: There are still several studies underway that need to be completed prior to resolving this issue. IMO is still in the process of developing HF Data system performance requirements. These studies should be completed prior to the next Conference, where the appropriate changes to the RR can be considered.

USA/ /3 MOD

ARTICLE 5
Frequency allocations

3 230-5 003 kHz

Allocation to services		
Region 1	Region 2	Region 3
4 063-4 438	MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128 5.129 <u>5.XYZ</u>	

5 003-7 450 kHz

Allocation to services		
Region 1	Region 2	Region 3
6 200-6 525	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137 <u>5.XYZ</u>	

7 450-13 360 kHz

Allocation to services		
Region 1	Region 2	Region 3
8 195-8 815	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111 <u>5.XYZ</u>	

12 230-13 200	MARITIME MOBILE 5.109 5.110 5.132 5.145 <u>5.XYZ</u>	
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13 360-18 030 kHz

Allocation to services		
Region 1	Region 2	Region 3
16 360-17 410	MARITIME MOBILE 5.109 5.110 5.132 5.145 <u>5.XYZ</u>	

18 030-23 350 kHz

Allocation to services		
Region 1	Region 2	Region 3
18 780-18 900	MARITIME MOBILE <u>5.XYZ</u>	

19 680-19 800	MARITIME MOBILE 5.132 <u>5.XYZ</u>	
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22 000-22 855	MARITIME MOBILE 5.132 5.156 <u>5.XYZ</u>	
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23 350-27 500 kHz

Allocation to services		
Region 1	Region 2	Region 3
25 070-25 210	MARITIME MOBILE <u>5.XYZ</u>	

26 100-26 175	MARITIME MOBILE 5.132 <u>5.XYZ</u>	
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USA/ /4 ADD

5.XYZ In the bands 4 063-4 438 kHz, 6 200-6 525 kHz, 8 195-8 815 kHz, 12 230-13 200 kHz, 16 360-17 410 kHz, 18 780-18 900 kHz, 19 680-19 800 kHz, 22 000-22 855 kHz, 25 070-25 210 kHz, and 26 100-26 175 kHz allocated exclusively to the maritime mobile service are used in accordance with Article **52**. The use of HF Data transmissions in the duplex telephony channels may be used for the introduction within the maritime mobile service of new HF 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 **52**.

Reasons: Allow limited use of HF data services in radiotelephony channels addressed by Article **52**.

USA/ /5

SUP

~~RESOLUTION 544 (WRC-03)~~

~~**Identification of additional spectrum for the
broadcasting service in the HF bands**~~

Reasons: The impact to the Fixed and Mobile community is too severe to allocate additional spectrum to the broadcasters that would, in fact, come from bands assigned to these services. In addition, the long term need for additional broadcasting spectrum is unknown. Additional spectrum reallocated to the broadcast service would result in congestion to the fixed and mobile service, including the MMS. Congestion is now present in some fixed and mobile bands. Recent operations supporting disaster relief demonstrated fixed and mobile service requirements exceeded the spectrum allocated to these services. Frequencies used by the Maritime Mobile Service support general and safety related communications as well as Ship Security Alert Systems communications and Long Range Tracking and Identification. Any degradation of these services would have severe consequences.

Improvements in HF technology have increased the importance of HF radiocommunications for a variety of users. New applications used by the Fixed and Mobile Service require additional bandwidth to allow higher data rates. These new technologies now make HF communications viable and affordable for many applications such as data exchange, fax, messaging, imagery, and voice

USA/ /6

SUP

~~RESOLUTION 729 (WRC-97)~~

~~**Use of frequency adaptive systems in the
MF and HF bands**~~

Reasons: The studies under Resolution 729 have been completed. These studies have indicated that no changes to the RR are required to facilitate the introduction of adaptive techniques in the MF/HF bands.

RESOLUTION USA_HF (WRC-07)

Bandwidth Requirements for Advanced Fixed and Mobile HF Technologies in the 3 – 30 MHz Band

The World Radio communication Conference (Geneva, 2007),

considering

- a) that there are a limited number of fixed and mobile 3 kHz bandwidth channels, and many channel bandwidths are below 500 Hz, in the planned portions of the 3-30 MHz band;
- b) that trials of advanced fixed and mobile HF frequency systems have demonstrated their feasibility and their associated spectrum efficiency;
- c) that advanced fixed and mobile HF frequency systems require larger channel bandwidth assignments greater than the 3 KHz assignments that are currently common.

noting

that some advanced fixed and mobile HF frequency adaptive systems utilize bandwidths of up to 12 kHz to support HF electronic messaging, HF Internet, and HF file transfer;

resolves to invite ITU-R

- 1 to determine the feasibility of changing the Radio Regulations to provide for the use of wider bandwidths to support advanced fixed and mobile HF systems in the 3 – 30 MHz band;
- 2 to bring the results of these studies to the attention of WRC-[11]

Reasons: Urgent studies are required to determine the suitability of changing the radio regulations to allow for wider bandwidths to the fixed and mobile services to accommodate advanced HF adaptive systems.