

## THE MARITIME AND COASTGUARD AGENCY:

### Response to Independent Radio Spectrum Management Review

1. How will the review measure the opportunity cost of emergency services versus commercial applications of spectrum? (¶16)
2. We note that the ratio of benefits to consumers and producers versus licence fees is <1:1 for maritime services, the lowest ratio of all services. (¶17)
3. The table at ¶18 contains a footnote to the effect “Satellite links: fees do not apply to mobile satellite stations” – regrettably this does not apply to maritime stations!
4. Under the International Maritime Organization’s *International Convention for the Safety of Life at Sea* (SOLAS) and the international radio regulations as well as European directives and national laws, a wide range of vessels are obliged to carry a range of radio equipment for safety purposes. How does the mandatory carriage of this equipment affect the economic value/price of the spectrum used for emergency purposes?
5. The consultation paper says that “all spectrum users should face some form of price reflecting the opportunity cost of their spectrum use, thus providing incentives over the long term for towards efficient use.” Is price the only mechanism for achieving efficient use of spectrum? Are there not, for example, technological means to achieve the same ends? (¶24)
6. It would be useful if ¶¶29 and 30 could be re-expressed in layman’s terms. How would this alternative to apparatus licensing work in practice?
7. The consultation paper says “Delegation of certain spectrum management functions to experts within specialised agencies/departments can clearly provide benefits to particular constituencies of users, in terms of understanding of and responsiveness to their needs.” The MCA wholeheartedly agrees with this. Indeed, we have recently initiated discussions with the RA where we are proposing the transfer of ship radio licensing to the MCA. (¶45)
8. The MCA is developing a more comprehensive maritime contribution to the next edition of the RA’s *Strategy for the future use of the Radio Spectrum in the UK*. (¶47)

9. Issue xiii (p19) raises a matter that is of current interest to the maritime industry and the fishing industry in particular. Discussion centres on whether vessels' MMSIs (Maritime Mobile Service Identity), in effect a vessel's telephone number, should be readily available in a directory format as land-based telephone numbers are. Confidentiality could be ensured by an ex-directory option.
  10. A point of clarification - the Coastguard is often referred to as 'the fourth emergency service' but unlike the police, fire and ambulance does not come under the Home Office but the Department of Transport, Local Government and the Regions (DTLR). (¶90)
  11. The Emergency Services section (p30) says "Spectrum pricing is being phased in to this sector, with charges calculated on a comparable basis to the equivalent commercial use of the spectrum." The MCA is a consumer of spectrum for Coastguard operations. Is it intended that this spectrum will be covered by this change? (¶92)
  12. The effectiveness of spectrum pricing as an incentive to use it efficiently tends to be marginal when you are a safety-of-life organisation involved in search and rescue. Use tends to be demand led with periods of inactivity when coastguards are keeping a listening watch on international distress frequencies. Availability when it counts is a key issue. We would like to explore this with the review team. (¶98)
  13. Spectrum trading is extensively covered in ¶¶102- 121. Do the review team see any impact here for the MCA?
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## **THE MARITIME AND COASTGUARD AGENCY AND THE FUTURE OF RADIO SPECTRUM MANAGEMENT**

### **Introduction**

- 1) Last year the developed nations woke up to the value of radio spectrum particularly as it applies to the development of third generation mobile phone technology. In the UK, licences exchanged hands for large sums netting £22 billion for HM Treasury. Since then spectrum auctions have failed to attract such prices and buyers as doubts have surfaced about the ability of the successful bidders to recoup their investment. Technology and telecommunications stocks and shares have led the downturn in world markets that occurred in March 2001.
- 2) Despite these uncertainties the way spectrum is viewed as a resource has changed for ever and this presents a number of challenges for the Maritime and Coastguard Agency (MCA). The MCA is a consumer of spectrum (for HM Coastguard operational communications) and is the national administration with responsibility for maritime radiocommunications (specifically the Global Maritime Distress and Safety System (GMDSS)) and radiodetermination (specifically radionavigation).

### **Aim**

- 3) The aim of this paper is to set out the MCA's perspective on spectrum management within a national and international context.
- 4) It is also designed to provide the basis for a comprehensive maritime entry in Radiocommunications Agency's (RA) new spectrum strategy due for publication in the autumn of 2001.
- 5) The principal issues covered by the paper are: -
  - a) how to apply the concept of the monetary value of spectrum within a safety of life context and what it means for accessibility to it;
  - b) how to use spectrum more efficiently;
  - c) regulation and compliance; and
  - d) the MCA's role in national and international spectrum planning.

## Background

- 6) The beginnings of maritime radio are associated in the public mind with two events – the shipboard arrest of Dr Crippen as he attempted to escape with Ethel le Neve, and the loss of the *Titanic*.
- 7) From that tragedy in 1912 until the implementation of GMDSS (1992-1999) little changed in the way radio was used to save lives at sea. The technology advanced during that time (the development of radar and satellite technology are but two examples) but the principle that ships in distress used radio to contact other nearby vessels for assistance remained the same. The arrival of GMDSS shifted once and for all the co-ordination of maritime search and rescue to shore-based installations (coast radio stations and coastguard stations). The activities of the MCA and its predecessors have adapted to take account of this change.
- 8) Over time a number of frequencies have been allocated both nationally and internationally for distress and safety, search and rescue and emergencies at sea, as well as on land, in the air and in space. These frequencies can be found in Annex K to the United Kingdom Peacetime Frequency Allocation Table (recently declassified). The annex is reproduced in the Appendix to this paper.

- 9) Two recent initiatives have highlighted the Government's desire to give wide access to a choice of diverse communications services and to scrutinise how spectrum is managed. They are:-
- a) the White Paper "A New Future for Communications" which proposes the setting up of a new unified regulator for the communications sector – OFCOM. The White Paper is a joint initiative by the Department of Trade & Industry and the Department for Culture, Media and Sport. OFCOM would subsume the Broadcasting Standards Commission, the Independent Television Commission, Oftel, the Radio Authority and the RA; and
  - b) the Treasury-driven independent review of radio frequency spectrum management. The review team will report to the Chancellor and the Secretary-of-State at the DTI, Stephen Byers.
- 10) It is appropriate, therefore, that the MCA reviews and publishes its radio spectrum policy.

#### **What the MCA undertakes to do**

- 11) The MCA will: -
- a) release spectrum as and when it is no longer required for HM Coastguard operational activities;
  - b) take all reasonable steps to operate in a spectrum efficient manner including the use of sharing;
  - c) be responsive and proactive in eliminating interference to other services from MCA installations and be in compliance with regulations;
  - d) continue to play a positive part in spectrum planning at a national and international level; and
  - e) continue to develop a constructive and co-operative relationship with the RA and other agencies, being as open and informative as possible.

#### **What the MCA asks for in return**

- 12) The MCA looks to other agencies, and in particular the RA/OFCOM, to: -
- a) recognise and take account of the MCA's national and international obligations for the following activities - promoting safety of life at sea through GMDSS, supporting a search and rescue capability, participating in Cospas-Sarsat activities as a ground segment provider and providing a counter-pollution capability;

- b) help ensure that the legitimate activities of the MCA in protecting life and the environment are not compromised by failure on the part of others to comply with regulations on the use of the radio spectrum;
- c) take account of the differing operational characteristics of radiocommunication and radar when considering spectrum usage; and
- d) be open and communicative about activities and proposals that may impact the MCA.

### **The value of spectrum and access to it**

- 13) The Treasury has expressed the view that national spectrum should be allocated to those who value it most. It is clear that this primarily means market value. However, it also seems clear that this does not mean there will be a fully free unfettered market in spectrum. The appropriateness of the use to which spectrum is put, both in terms of services provided and suitability of a particular part of the spectrum for a particular type of application, will also be taken into account. This is important, because if pricing is to be the primary spectrum management tool, then it can appear to be a rather blunt tool for organisations like the MCA who are primarily in the business of preserving and saving life. What this means as far as licensing and pricing MCA usage is concerned is not yet clear.
- 14) In the context of the forthcoming Communications Bill the MCA needs to understand the implications of the proposed change in the basis of licensing from apparatus licensing to spectrum licensing as it affects the maritime community and H.M. Coastguard.
- 15) The RA has recognised that there is a key issue of maintaining an appropriate level of Ministerial control to ensure that public sector users and essential services can be guaranteed access to the spectrum they need. This clearly addresses the requirement for H.M. Coastguard to have access to spectrum where safety of life is at stake.
- 16) The MCA will be seeking greater clarity on what the Bill means for seafarers who need access to spectrum to alert the search and rescue authorities in an emergency. Apart from references to land-based access to the emergency services via the telephone network, the Communications White Paper is silent on spectrum use for search and rescue activities.
- 17) We will be pursuing all these outstanding points in our continuing discussions with the RA.

### **The efficient use of spectrum**

- 18) Surrendering spectrum no longer required and ensuring the maintenance and correct usage of equipment are ways in which the MCA can ensure best use of the spectrum. The external application of pricing provides a further incentive but it can appear to be arbitrary as a tool (see 13 above).
- 19) Another approach is to improve the technology behind radio and radar by, for example, using digital techniques to get more out of the spectrum and reduce out-of-band interference. However, this is a longer-term strategy. Manufacturers are understandably reluctant to develop new techniques and equipment if they cannot see a market for it. Spectrum pricing is one way of creating that demand though it can take years for new technology to reach the marketplace.

### **Regulation and compliance**

- 20) We have stated (at 11) c) above) that the MCA will honour its obligation to comply with regulations.
- 21) The MCA in its turn looks to the RA to deal effectively and promptly with interference that compromises or may compromise MCA activity, particularly where safety of life is concerned.
- 22) We do have concerns that there will be occasions when the RA, despite its best endeavours, will not be able to identify, isolate and eliminate interference in time to prevent a search and rescue operation being compromised. When things go wrong at sea events can move very rapidly.

### **Spectrum Planning**

- 23) The MCA has always played an active role in national and international spectrum planning working closely with the RA, in particular the Specialist Sectors Unit, and will continue to do so.
- 24) Outside the International Maritime Organization's Sub-committee on Radio Communications and Search and Rescue (COMSAR) and Cospas-Sarsat, attendance by delegates from maritime administrations in international conferences on radio matters tends to be light. This was evident at the International Telecommunications Union's (ITU) World Radio Conference (WRC) in 2000. MCA recognises the importance of spectrum planning for maritime applications and this will be reflected in its participation in national and international arenas.

## **Conclusion**

25) The MCA's policy on spectrum management remains one of positive engagement with other governmental bodies particularly the RA with whom we wish to continue building a constructive relationship. We will also continue to represent the interests of the UK maritime community to the wider family of spectrum users seeking practicable solutions that meet the needs of seafarers.

### FREQUENCIES FOR DISTRESS AND SAFETY, SEARCH AND RESCUE AND EMERGENCIES

Frequency kHz	Use
490	Transmission by coast stations or meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing (NBDP) telegraphy.
500	International distress frequency for Morse telegraphy. Distress calls and traffic, urgency signal and urgency messages and the safety signal.
518	Transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of NBDP (international NAVTEX).
2 174.5	Global Maritime Distress and Safety System (GMDSS) distress and safety traffic by NBDP.
2 182	International distress carrier frequency for radiotelephony. Distress calls and traffic, signals of emergency position-indicating radio-beacons (EPIRBs), urgency signal and urgency messages and the safety signal. GMDSS distress and safety traffic by radiotelephony. Search and Rescue (SAR) operations concerning manned space vehicles.
2187.5	GMDSS distress and safety calls using digital selective calling (DSC).
2 596	Carrier frequency for radiotelephony. Used in the UK for SAR purposes by HM Coastguard (HMCG) and the Royal National Lifeboat Institution (RNLI).
3 023	Aeronautical carrier frequency for radio-telephony. Used in co-ordinated SAR operations. SAR operations concerning manned space vehicles.
3 500 - 3 800	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
4 125	Carrier frequency used to supplement 2 182 kHz for distress and safety. GMDSS distress and safety traffic by radiotelephony. May be used by aircraft to communicate with stations of the maritime mobile service for distress and safety purposes, including SAR.
4 177.5	GMDSS distress and safety traffic by NBDP.
4 207.5	GMDSS distress and safety calls using DSC.
4 209.5	NAVTEX-type transmissions by coast stations by means of NBDP.
4 210	Transmission by coast stations of maritime safety information (MSI) by means of NBDP.
5 680	Aeronautical carrier frequency for radiotelephony. Used in co-ordinated SAR operations. SAR operations concerning manned space vehicles.
6 215	Carrier frequency used to supplement 2 182 kHz for distress and safety. GMDSS distress and safety traffic by radiotelephony.
6 268	GMDSS distress and safety traffic by NBDP.
6 312	GMDSS distress and safety calls using DSC.
6 314	Transmission by coast stations of MSI by means of NBDP.
7 000 - 7 100	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area
8 291	Carrier frequency for GMDSS distress and safety traffic by radiotelephony.
8 364	Used by survival craft in SAR operations with stations of the maritime and aeronautical mobile services.
8 376.5	GMDSS distress and safety traffic by NBDP
8 414.5	GMDSS distress and safety calls using DSC.
8 416.5	Transmission by coast stations of MSI by means of NBDP.

<b>Frequency kHz</b>	<b>Use</b>
10 003	SAR operations concerning manned space vehicles.
10 100 - 10 150	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area
12 290	Carrier frequency for GMDSS distress and safety traffic by radiotelephony.
12 520	GMDSS distress and safety traffic by NBDP.
12 577	GMDSS distress and safety calls using DSC.
12 579	Transmission by coast stations of MSI by means of NBDP.
14 000 - 14 350	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
14 993	SAR operations concerning manned space vehicles.
16 420	Carrier frequency for GMDSS distress and safety traffic by radiotelephony.
16 695	GMDSS distress and safety traffic by NBDP.
16 804.5	GMDSS distress and safety calls using DSC.
16 806.5	Transmission by coast stations of MSI by means of NBDP.
18 068 - 18 168	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
19 680.5	Transmission by coast stations of MSI by means of NBDP.
19 993	SAR operations concerning manned space vehicles.
21 000 - 21 450	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
22 376	Transmission by coast stations of MSI by means of NBDP.
24 890 - 24 990	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
26 100.5	Transmission by coast stations of MSI by means of NBDP.

Frequency MHz	Use
86.3 - 125	Land SAR - England, Wales and Ireland
121.5	Aeronautical emergency frequency for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service. May also be used for these purposes by survival craft stations. EPIRBs may also use this frequency. SAR operations concerning manned space vehicles.
123.1	Auxiliary to 121.5 MHz, for use by stations of the aeronautical mobile service and by other mobile and land stations engaged in co-ordinated SAR operations.
132.65	SAR helicopter co-ordination.
144 – 146	Amateur band; in the event of natural disasters, may be used by non-amateur stations to meet the needs of international communications in the disaster area.
156	HMCG SAR on the UK coast.
156.3	Communications between ship stations and aircraft stations engaged in co-ordinated SAR operations. May be used by aircraft stations to communicate with ship stations for other safety purposes.
156.375	Communication between ship stations, aircraft stations and participating land stations engaged in co-ordinated SAR and anti-pollution operations. HMCG Yacht safety channel (1st reserve).
156.5	Communication between ship stations, aircraft stations and participating land stations engaged in co-ordinated SAR and anti-pollution operations.
156.525	In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling (see Resolution 323 (Mob-87).
156.65	GMDSS ship-to-ship communications relating to the safety of navigation.
156.675	Communications between ship stations, aircraft stations and participating land stations engaged in co-ordinated SAR and anti-pollution operations. HMCG 2nd reserve channel for SAR.
156.8	International distress and safety frequency for radiotelephony. Used for the distress signal the distress call, distress traffic, the urgency signal urgency traffic and the safety signal. GMDSS distress and safety traffic by radiotelephony. May be used by aircraft stations for safety purposes only. SAR operations concerning manned space vehicles.
158.65	Land SAR - Scotland.
160.6	HMCG SAR on the UK coast.
243	Survival craft stations and equipment used for survival purposes. SAR operations concerning manned space vehicles.
282.8	Survival craft stations and equipment used for survival purposes. SAR operations concerning manned space vehicles.
406 – 406.1	Satellite EPIRBs in the Earth-to-space direction.
1 530-1 544	In addition to routine non-safety use, is used for distress and safety purposes in the space-to earth direction in the maritime mobile-satellite service.
1 544-1 545	Distress and safety operations including feeder links of satellites need to relay the emissions of satellite EPIRBs to earth stations and narrow-band (space-to-earth) links from space stations to mobile stations.
1626.5- 1645.5	In addition to routine non-safety use, is used for distress and safety purposes in the earth-to-space direction in the maritime mobile-satellite service.
1645-1646.5	Distress and safety operations including transmissions from satellite EPIRBs and relay distress alerts received by satellites in low polar earth orbits to geostationary satellites.
9200-9500	Radar transponders to facilitate SAR.