

Position Paper from the Telecommunications  
Regulatory Authority and the Directorate of  
Wireless Licensing, Frequency and Monitoring  
concerning the provision of public  
telecommunications to aeronautical and maritime  
vehicles in the Kingdom of Bahrain

---

## Contents

Introduction .....	3
What services are provided and how do these systems work?.....	3
Relevant Legal Provisions.....	4
Legal Analysis .....	7
With respect to GSM provision.....	7
With respect to Internet Service Provision (ISP).....	9
Website Blocking, Lawful Access and Consumer Protection: .....	10
Frequency Licensing.....	10
Conclusions .....	12
Implementation of Policy.....	13
Conditions to be met by a system providing MCV services in the territorial seas of the Kingdom of Bahrain, in order to avoid harmful interference to land-based mobile networks .....	14

## Contact Details

Kingdom of Bahrain, Central Informatics and Telecommunication Organisation, Directorate of Wireless Licensing Frequencies and Monitoring, PO Box 26627, Manama, Kingdom of Bahrain. Tel: +973 1737 7277, Fax: +973 1771 5030, Email: [dwlfm@cio.gov.bh](mailto:dwlfm@cio.gov.bh)

Kingdom of Bahrain, Telecommunications Regulatory Authority, PO Box 10353, Manama, Kingdom of Bahrain. Tel: +973 1752 0000, Fax: +973 1753 2125, Email: [contact@tra.org.bh](mailto:contact@tra.org.bh)

## Introduction

1. This Position Paper has been developed to provide information on the telecommunications licensing requirements for the provision of public telecommunications and on-board entertainment systems to ships, Mobile Communications with Vessels (“MCV”) and Internet Service Provision to Vessels – (“ISPV”) and aircraft, Mobile Communications with Aircraft (“MCA”) and Internet Service Provision to Aircraft (“ISPA”) within the territory of the Kingdom of Bahrain.
2. The Position Paper addresses the following situations:
  - a. The provision of public telecommunications to ships and aircraft which are registered in the Kingdom of Bahrain; and
  - b. the provision of public telecommunications to ships and aircraft not registered in the Kingdom of Bahrain but are present within the territorial sea or national airspace of the Kingdom of Bahrain.

## What services are provided and how do these systems work?

3. The on-board services provided will depend on commercial arrangements between the vehicle owner and the telecommunications provider but generally live television, Internet and GSM are provided in the European and Middle East Area.
4. A satellite Earth station is installed in the maritime or aeronautical vehicle to provide the connectivity between the vehicle and the public network. The connection to the public network may take place in any country within the service footprint of the satellite system used to provide the service. It is necessary to ensure that the Earth station transmitter does not cause harmful interference to terrestrial radiocommunications services.
5. GSM services will be provided by a small base-station (BTS) installed in the vehicle, which is connected to the on-board Earth station. Terrestrial GSM networks must be protected from the on-board BTS and passengers’ terminal devices connecting to it. This is achieved by imposing height or distance from coast restrictions, within which the on-board service can or cannot be used.
6. In a similar manner Internet Service Provision (“ISP”) will generally be provided to a Local Area Network (“LAN”) within the vehicle, either through a wired connection from passengers’ terminal devices or by means of a radio based WiFi connection. The LAN will also be connected to the on-board Earth station.
7. Live television can be provided via the on-board Earth station by a number of mechanisms e.g. through the ISP by Internet Protocol Television (“IPTV”) or any other means available. Since broadcasting is a uni-directional service and no on-board transmitters are involved in providing the service to passengers and in addition the Kingdom’s Telecommunications Law specifically excludes Broadcasting from the definition of Telecommunications, Broadcasting is not discussed any further in this document.

## Relevant Legal Provisions

Definitions of Territory and Jurisdiction under International Law and National Law:

### Bahrain's Maritime Law (Amiri Decree No. 82 of 1982)<sup>1</sup>

8. Article 2 states that without prejudice to international agreements to which the Kingdom is a signatory, a vessel acquires Bahraini nationality and flag if it is registered in the State and the owners are also Bahraini. Subject to Cabinet approval, vessels owned by non-Bahrainis may be granted Bahraini nationality if registered in the Kingdom.

### United Nations Convention on the Law of the Sea (UNCLOS)<sup>2</sup> has codified the law of the flag

9. Article 2 declares that sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea and that this sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil.
10. Article 3 explains that the territorial sea shall not exceed 12 nautical miles.
11. Article 91 requires that ships have the nationality of the State whose flag they are entitled to fly.
12. Article 92 declares that no state shall exercise criminal jurisdiction over a foreign vessel on the high seas unless permitted by treaty.
13. Article 27 restricts states from exercising jurisdiction over vessels in their territorial waters
14. Article 94 requires that States shall effectively exercise their jurisdiction and control through national law in administrative, technical and social matters concerning the ship.
15. Bahrain deposited its instrument of ratification on 30 May 1985.
16. The European Union<sup>3</sup> has stated that maritime connectivity applications are used on board freight and passenger ships sailing within territorial seas and

---

<sup>1</sup> [Bahrain Marine Code \(1982\) - Arabic http://www.gop.org.bh/pdf/publication-bahrainmaritimecode1982.pdf](http://www.gop.org.bh/pdf/publication-bahrainmaritimecode1982.pdf)

<sup>2</sup> United Nations Convention on the Law of the Sea  
<http://treaties.un.org/doc/Publication/UNTS/Volume%201833/volume-1833-A-31363-English.pdf>

<sup>3</sup> Commission Recommendation of 19 March 2010 on the authorisation of systems for mobile communication services on board vessels (MCV services) (2010/167/EU)

international waters within the European Union and are often pan-European or inter-State in nature. Systems providing MCV services aim to complement existing mobile connectivity when operating in those areas of the territorial seas of the European Union Member States, as defined in the UNCLOS, that are not covered by land-based mobile networks

Bahrain's Civil Aviation Law (Amiri Decree No. 6 of 1995)<sup>5</sup>:

17. Article 3 of the Law states that this Law and all other International Aviation Conventions that Bahrain is a signatory to (such as the International Civil Aviation Convention and Convention on Offences and Certain Other Acts Committed on Board Aircraft) applies to Bahraini registered aircraft operating in the territory of Bahrain (the airspace above the land territory of Bahrain) as well as Bahraini registered aircraft operating outside of the territory of Bahrain as long as the Law does not contravene any national laws of the foreign country that the aircraft is operating in.

International Civil Aviation Convention ("the Chicago Convention")<sup>6</sup>:

18. Article 1 of the Chicago Convention states:

*"The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory."*

19. Article 17 of the Chicago Convention states:

*"Aircraft have the nationality of the State in which they are registered."*

20. Article 30 (a) of the Chicago Convention states:

*"Aircraft of each contracting State may, in or over the territory of other contracting States, carry radio transmitting apparatus only if a license to install and operate such apparatus has been issued by the appropriate authorities of the State in which the aircraft is registered. The use of radio transmitting apparatus in the territory of the contracting State whose territory is flown over shall be in accordance with the regulations prescribed by that State."*

21. Article 30 (b) of the Chicago Convention states:

*"Radio transmitting apparatus may be used only by members of the flight crew who are provided with a special license for the purpose, issued by the appropriate authorities of the State in which the aircraft is registered."*

---

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:072:0042:0045:EN:PDF>

<sup>4</sup> Commission Decision of 19 March 2010 on harmonised conditions of use of radio spectrum for mobile communication services on board vessels (MCV services) in the European Union (2010/166/EU)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:072:0038:0041:EN:PDF>

<sup>5</sup> Legislation and Legal Opinion Commission, (<http://www.legalaffairs.gov.bh/viewhtm.aspx?ID=L0695>)

<sup>6</sup> International Civil Aviation Organisation, International Civil Aviation Convention ("the Chicago Convention"), <http://www.icao.int/icaonet/dcs/7300.html>.

22. The Civil Aviation Authorities (“CAA”) of Bahrain, through its Aeronautical Licensing Directorate, ensures compliance with the above Convention and its Annexes.

Convention on Offences and Certain Other Acts Committed on Board Aircraft signed at Tokyo on 14 September 1963 (“the Tokyo Convention”)<sup>7</sup>:

23. Article 3 states:

*“The State of registration of the aircraft is competent to exercise jurisdiction over offences and acts committed on board.”*

24. Ofcom, in its discussion paper on the introduction of mobile services on aircraft explained that international aviation conventions such as the Tokyo Convention, the Chicago Convention and others, all lead to a general principle that the territory of a State includes the cabin space of an aircraft that is registered to that State.<sup>8</sup>

25. The European Commission, in its recommendation of 7 April 2008 stated that for the purpose of the recommendation,

*“aircraft cabin space is considered to be under the jurisdiction and control of the country of registration of the aircraft.”<sup>9</sup>*

Current Licensing Regime in Bahrain under the Telecommunications Law as promulgated by Legislative Decree No. 48 of 2002 (“the Telecommunications Law”):

26. Public Telecommunications Network is defined in the Telecommunications Law as,

*“a Telecommunications Network used, in whole or in part, for the provision of Public Telecommunications Services provided either by a Licensed Operator of the Telecommunications Network or a third party.”*

27. Public Telecommunications Services is defined in the Telecommunications Law as *“fixed or mobile Telecommunications services available to the public.”*

28. Article 24 of the Telecommunications Law states,

*“(a) No Person shall operate a Public Telecommunications Network, any Telecommunications Network using a Telecommunications Frequency or provide a Telecommunications service in the Kingdom except after obtaining a Licence for that purpose in accordance the provisions of this Law.*

---

<sup>7</sup> Convention on Offences and Certain Other Acts Committed on Board Aircraft signed at Tokyo on 14 September 1963 (the Tokyo Convention), [http://dgca.nic.in/int\\_conv/Chap\\_XVI.pdf](http://dgca.nic.in/int_conv/Chap_XVI.pdf).

<sup>8</sup> Office of Communications (Ofcom), Mobile Services on Aircraft – Discussion Paper on the Introduction of Mobile Services on Aircraft, 10 April 2006, (<http://licensing.ofcom.org.uk/binaries/spectrum/mobile-wireless-broadband/aircraft.pdf>).

<sup>9</sup> European Commission, Commission recommendation of 7 April 2008 on authorization mobile communication services on aircraft (MCA services) in the European Community, (2008/295/EC), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:098:0024:0027:EN:PDF>

- (b) *No Person shall, without permission (to be granted in accordance with the conditions of the relevant Licence), connect to a Telecommunications Network licensed under this Law any other Telecommunications Network or any Telecommunications Equipment that is not authorised under Article 38 of this Law.”*
29. Article 25 of the Telecommunications Law states,
- “(a) *A Licence for the operation of a Telecommunications Network or for the provision of Telecommunications services may be granted for a finite period of time by the Authority by way of either an Individual Licence or a Class Licence in accordance with the provisions of Article 29 and 32 of this Law.*
- (b) *The granting of a Licence in accordance with the provisions of this Law shall not prejudice any other conditions, licenses, permit or obligations provided for in any other law.”*
30. Articles related to the requirements and contents of Licenses and submission of Licence applications are highlighted within the Telecommunications Law.<sup>10</sup>
31. Article 38 states that Telecommunications Equipment is approved by the Authority for connection to a Telecommunications Network through the issuance of regulations or certificates by the Authority.

## Legal Analysis

### Is a Telecommunications Services Licence required on board a ship or aircraft?

32. The Authority has stated in its Position Paper No. 1 of 2007 on the Regulation of Voice over Internet Protocol (“VoIP”) Services<sup>11</sup> that it aims to apply the existing legislation of Bahrain in a technology neutral manner and increasingly, with new technological developments the Authority looks at the functional equivalence of the addition of new elements to existing ones in terms of end user experience. The Authority aims to apply the above position in relation to the provision of public telecommunications on board aircraft and ships.

### With respect to GSM provision

33. GSM services on-board aeronautical and maritime vehicles are provided to passengers solely by means of roaming agreements between specialist maritime or aeronautical GSM operators, and other terrestrial and satellite GSM Operators. The specialist maritime and aeronautical operators which supply GSM MCV and MCA services to ships and aircraft are members of the GSMA<sup>12</sup> (“Global System

---

<sup>10</sup> Chapter 8 of the Telecommunications Law which relates to Licensing and Equipment Approvals can be found at <http://www.tra.org.bh/en/pdf/TelecommunicationsLaw-secondedition-English.pdf>

<sup>11</sup> The Authority’s VoIP Position Paper can be found at [http://www.tra.org.bh/en/pdf/FinalVOIP2007\\_PositionPaper-consolidatedwithcorrigendum\\_Final.pdf](http://www.tra.org.bh/en/pdf/FinalVOIP2007_PositionPaper-consolidatedwithcorrigendum_Final.pdf)

<sup>12</sup> GSMA Web-Site <http://www.gsmworld.com>

for Mobile communications Association”) and in addition have an ITU country code to facilitate roaming services.<sup>13</sup>

34. In relation to MCAs international studies conducted by the European Telecommunications Standards Institute (“ETSI”), with input from international aviation regulatory bodies, have shown that if the GSM BTS is switched off at altitudes of 3000m and below there is little chance of interference occurring to radiocommunications services on the ground. In addition, mobile handsets used onboard the aircraft will not have substantial, direct or foreseeable effects within Bahrain since they cannot be used in the absence of a functioning BTS.
35. BTS functionality is controlled by the Captain or a designated crew member. When operational the passenger using his own GSM terminal connects via the BTS and Earth station to the operator providing the MCA or MCV service. Once authentication processes are complete the passenger can be connected to any public telecommunications subscriber in the world through the normal roaming process, where individual operator members of the GSMA enter into bilateral commercial agreements in order to provide global public mobile telecommunications services.
36. It is pertinent to note that the Telecommunications Regulatory Authority of the United Arab Emirates (“TRA UAE”) has issued a Radio Service Authorisation for the provision of a GSM MCA Service on UAE registered aircraft and aircraft that operate inside UAE’s airspace. A separate service licence is not provided by TRA UAE. This was because in their view no “public” telecommunications services were being provided as passengers are billed by the home GSM operator.
37. Furthermore MCA and MCV operators will not be directly, effectively and purposefully targeting their activities to end users in Bahrain. They are facilitating end users to be provided a service from their home Licensed Operators. The Authority has previously taken a similar approach in relation to the regulation of VoIP providers in its VoIP Position Paper where it has stated that licensing jurisdiction applies where a provider,  
*“effectively, deliberately and purposefully directs (targets) its activities to a specific country (or an activity has a substantial, direct and foreseeable effect within a state.”*<sup>14</sup>
38. For the above reasons, the Authority’s current view is that MCA and MCV systems are facilitating end users to access existing Licensed Operator networks that hold the necessary Licenses through the use of roaming agreements to provide connectivity and are therefore compliant with the Telecommunications Law. It therefore follows that MCA and MCV systems are not Public Telecommunications Services and MCA and MCV operators are not Public Telecommunications

---

<sup>13</sup> Complement to ITU-T Recommendation E164 [http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164\\_763.html](http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164_763.html)

<sup>14</sup> See footnote 11

Operators within Bahrain. They therefore do not require a public Mobile Telecommunications Licence.

39. Frequency Licences are addressed later in this document.

### **With respect to Internet Service Provision (ISP)**

40. Internet Service Provision to Aircraft (ISPA) and Internet Service Provision to Vessels (ISPV) systems provide Internet connectivity on ships and aircraft akin to a WiFi hotspot. An ISPA or ISPV service can be provided by the same operator that provides MCA or MCV services, or a different or additional operator. If a Licensed Operator in Bahrain has a roaming agreement with the ISPA or ISPV operator end users who are customers of roaming partners can decide to use their account with their home Licensed Operator.
41. The main technical cause for concern in ISPA and ISPV systems is possible Earth station uplink emissions interfering with terrestrial services. However ISPA systems may be switched on and off at the same time as GSM services (e.g. around 3000m altitude) simply because it is normal practice to switch off all electronic apparatus during take-off and landing. The Earth station interference issue is addressed in the section dealing with Frequency Licences.
42. In a similar manner to the provision of GSM, the Authority believes that ISPA and ISPV operators will not be directly, effectively and purposefully targeting their activities to end users in Bahrain, rather they are providing a portal to access the Internet. The Authority has again taken the same approach as that taken in relation to the regulation of VoIP providers in its VoIP Position Paper where it has stated that licensing jurisdiction applies where a provider,
- “effectively, deliberately and purposefully directs (targets) its activities to a specific country (or an activity has a substantial, direct and foreseeable effect within a state.”<sup>15</sup>*
43. In addition, the provision of ISP connectivity onboard an aircraft or ship registered in the Kingdom will not have substantial, direct or foreseeable effects on competition within the Telecommunications market of Bahrain.
44. For the above reasons, the Authority’s view is that ISPA and ISPV operators do not require a Telecommunications Services Licence from the Authority to operate onboard Bahraini registered ships and aircraft.
45. However, ISPA and ISPV systems normally operate in the 2.4GHz and 5 GHz bands to provide services to passengers’ terminal equipment. Such equipment is subject to the lite licensing regime within the Kingdom of Bahrain but only in the 2.4 GHz, 5.2 GHz and 5.8 GHz bands and a registration process is involved. The 5.4 GHz band is not available for land based systems. On ships and aircraft such equipment needs to be included in the frequency licence pertaining to the ship or

---

<sup>15</sup> See Footnote 11

aircraft. This may in addition include the 5.4 GHz band. This matter is further addressed in the section dealing with frequency licensing.

## **Website Blocking, Lawful Access and Consumer Protection:**

46. Operators providing Internet services on ships and aircraft registered in the Kingdom of Bahrain are required to comply with the Ministry of Culture and Information's Resolution No. 1 of 2009 with respect to the Regulation of Websites Blocking ("Website Blocking Resolution")<sup>16</sup> and shall not allow access to blocked websites.
47. Since operators providing public telecommunication on board ships and aircraft registered in the Kingdom of Bahrain are not subject to the Lawful Access Regulation<sup>17</sup> all such operators shall cooperate with the security services in Bahrain when law enforcement investigations so require.
48. With respect to consumer protection, before using and paying for the MCA, MCV, ISPA or ISPV system, end users shall be provided with service provider information, the rates for using the system, as well as a contact number for complaints or quality of service follow-ups. This shall be available in Arabic and English. A copy of the operator's general terms and conditions shall also be provided to the Authority.

## **Frequency Licensing**

### Is a Frequency Licence required?

49. Systems providing on-board public telecommunication require the use of frequencies. Currently on-board Earth stations use one of three frequency combinations:
  - 6 GHz up-link, 4 GHz down-link (C Band)
  - 14 GHz up-link, 11/12 GHz down-link (Ku Band)
  - 30 GHz up-link, 20 GHz down-link (Ka Band).
50. MCA systems are presently restricted to the GSM-1800 frequency band, whilst MCV systems use GSM-900 and GSM-1800 frequencies.
51. ISPA and ISPV systems operate in the 2.4GHz and 5 GHz bands.

---

<sup>16</sup> This Resolution states that all telecommunications companies and Internet service providers must commit to blocking websites when a resolution is issued by the Minister. The Resolution specifies that other than blocking websites according to a Ministerial resolution, all pornographic websites that breach public morality must be blocked.

<sup>17</sup> As promulgated by Resolution No. 9 of the year 2009 promulgating a Regulation requiring Licensees to implement Lawful Access. The Regulation can be found at <http://www.tra.org.bh/en/pdf/PublishedLawfulAccessRegulation.pdf>

52. A Frequency Licence is required as per Article 43 of the Telecommunications Law which states:

*“No person shall operate a Telecommunications network which uses frequency spectrum in the Kingdom, or operate or use any Radiocommunications Equipment associated with such a network without obtaining a Licence.....”*

#### Who should hold the Frequency Licence?

53. Some operators have the opinion that Frequency Licences should be provided to the network operator and the ship's owner or airline's involvement is limited to obtaining the ship or aircraft radio licences for safety and regularity of travel purposes. The overall system responsibility therefore would lie with the operator. However the manual access and control of the onboard MCA, MCV, ISPA or ISPV system(s) lies with the crew and Captain when the ship or aircraft is underway.
54. However, Ofcom in the UK, in its 2008 Statement on MCA, stated that “service providers will have little responsibility in this operational area. The role of the MCA service provider is therefore less relevant so far as spectrum responsibilities are concerned.”<sup>18</sup> Ofcom's recommendation is that airlines should apply for frequency licences from national regulatory authorities and for this to be issued as a variation to their existing aircraft radio licences.
55. The Authority and DWLF&M's view is in line with Ofcom's statement above, that Licences should be held by the airline or ship's owner as the crew and Captain are responsible for manual access and operation of the Earth station, MCA, MCV, ISPA and ISPV system(s) when the aircraft or ship is underway.
56. Since March 2012 airlines and ship-owners already apply to DWLF&M for an Aircraft Station Radio Licence, or a Ship Station Radio Licence when the ship or aircraft concerned is registered in the Kingdom of Bahrain. In future this licence shall be amended to include frequencies or bands used by the Earth Station, MCA or MCV equipment and ISPA or ISPV equipment as appropriate.
57. Equipment subject to the 'lite licensing regime' when used for land based systems within the Kingdom shall also be included in the ship or aircraft licence and shall not be subject to lite licensing registration.

#### Mitigating the possibility of harmful Interference to stations in the Kingdom

58. Paragraphs 58 – 65 apply to both ships and aircraft registered in Bahrain and to ships and aircraft registered in other jurisdictions, which require passage through the Kingdom of Bahrain's territorial sea or airspace.

---

<sup>18</sup> Office of Communications (Ofcom), Mobile Communications on board Aircraft (MCA), 'Ofcom Statement on authorizing MCA services' 26 March 2008 (<http://stakeholders.ofcom.org.uk/binaries/consultations/mca/statement/mca.pdf>)

59. Earth station, MCA and ISPA transmitters shall not be operated at an altitude less than 3000 metres above the territory of the Kingdom of Bahrain (including the territorial sea).
60. Earth station, MCV and ISPV transmitters may operate on-board vessels in the territorial sea provided the following conditions are met. The Earth station shall comply with the conditions in paragraphs 61 and 62 below. The GSM Base station meets the technical requirements attached in the Annex to this Position Paper and the ISPV equipment conforms to the lite licence's technical parameters as stated in paragraph 65 below.
61. For Earth station equipment established on-board an aircraft or vessel utilising uplinks in the frequency band 14.00 – 14.5 GHz the power flux density on the territory of the Kingdom of Bahrain shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643, "*Technical and operational requirements for aircraft earth stations of aeronautical mobile-satellite service including those using fixed-satellite service network transponders in the band 14-14.5 GHz (Earth-to-space)*"
62. Similar limits will be developed for Earth station transmitters up-linking in the 6 GHz and 30 GHz bands. Until such limits have been agreed and implemented, emissions from on-board Earth stations shall not cause harmful interference to land based fixed point-to-point services in the Kingdom of Bahrain.
63. For MCA equipment the 3000m height limit is sufficient to protect interference to terrestrial GSM-1800 networks.
64. For MCV equipment the conditions described at Annex shall apply.
65. For ISPA and ISPV equipment operating in the 2.4 GHz and 5 GHz band the technical parameters relating to the lite licence<sup>19</sup> shall be respected. However the 5.4 GHz band may also be used on aircraft and vessels but shall not be used within 3000 metres above or from any point of the territory of the Kingdom of Bahrain.

## Conclusions

66. Aircraft and vessels registered in the Kingdom of Bahrain are considered to be Bahraini territory and thus under its jurisdiction.
67. Bahraini registered aircraft are thus subject to the Telecommunications Law, Civil Aviation Law and International Conventions on Civil Aviation.
68. Similarly Bahraini registered ships are subject to the Telecommunications Law, Maritime Code and the United Nations Convention on the Law of the Sea.

---

<sup>19</sup> Lite Licence - [http://www.tra.org.bh/en/pdf/FORM\\_OF\\_INDIVIDUAL\\_LICENSE\\_FOR\\_THE\\_USE\\_OF%202.pdf](http://www.tra.org.bh/en/pdf/FORM_OF_INDIVIDUAL_LICENSE_FOR_THE_USE_OF%202.pdf)

69. MCA and MCV systems do not provide a Public Telecommunications Service under the Telecommunications Law; they merely facilitate Licensed Operators to extend provision of their existing services to end users on-board aircraft and ships.
70. MCA, MCV, ISPA and ISPV systems do not require a Telecommunications services Licence to operate in the Kingdom of Bahrain.
71. On-board Earth stations, MCA, MCV, ISPA and ISPV systems require an amendment to the ship station or aircraft station Frequency Licence in order to operate listing the equipment on-board, frequency of operation and other pertinent technical conditions.
72. Compliance with the Website Blocking Resolution and cooperation with the security organs within Bahrain are required for all aircraft and ships registered in the Kingdom. In addition the airline or ship owner must provide end users with consumer information e.g. tariffs and contact numbers.
73. Non Bahraini registered ships and aircraft requiring the use of an on-board Earth station and MCA and MCV systems and/or ISPA or ISPV systems whilst passing the territorial sea or airspace shall seek the agreement of DWLF&M and shall comply with the requirements outlined in paragraphs 58 to 65 above.

## **Implementation of Policy**

74. All applications for a ship station or aircraft station Frequency Licence amendment by airlines or ship owners of Bahraini registered ships and aircraft, shall in the first instance be made to DWLF&M.
75. All applications for authority by ship owners or airlines for use of MCA, MCV, ISPA and ISPV systems on ships and aircraft not registered in Bahrain whilst passing Bahraini territory, shall also be made to DWLF&M. A letter will normally be issued agreeing to the request, provided compliance with the conditions outlined in paragraphs 58 to 65 is assured.
76. Before issuing an amended ship station or aircraft station Frequency Licence for the services addressed in this policy statement, DWLF&M shall seek a No Objection Certificate from the Authority to proceed. This will normally be granted quickly but a signed statement will be required by the applicant concerning the implementation of website blocking and cooperation on security matters, as well as an agreement to provide consumer information to users.

## Conditions to be met by a system providing MCV services in the territorial seas of the Kingdom of Bahrain, in order to avoid harmful interference to land-based mobile networks

The following conditions shall be met:

1. The system providing MCV services shall not be used closer than 2 nautical miles<sup>20</sup> from the baseline, as defined in the United Nations Convention on the Law of the Sea;
2. Only indoor vessel base-stations (BS) antenna(s) shall be used between 2 and 12 nautical miles from the baseline;
3. Limits to be set for mobile terminals when used on board vessel and for vessel-BS:
  - 3.1 Transmit power/power density
    - a. For mobile terminals used on board vessels and controlled by the vessel-BS in the 900 MHz band, the maximum radiated output power shall be 5 dBm,
    - b. For mobile terminals used on board vessels and controlled by the vessel-BS in the 1 800 MHz band, maximum radiated output power shall be 0 dBm,
    - c. For base stations on board vessels, the maximum power density measured in external areas of the vessel, with reference to a 0 dBi measurement antenna gain shall be -80 dBm/200 kHz.
  - 3.2 Channel access and occupation rules  
Techniques to mitigate interference that provide at least an equivalent performance to the following mitigation factors based on GSM standards shall be used:
    - a. Between 2 and 3 nautical miles from the baseline, the receiver sensitivity and the disconnection threshold (ACCMIN<sup>21</sup> and min RXLEV<sup>22</sup> level) of the mobile terminal used on board vessel shall be equal to or higher than -70 dBm/200 kHz
    - b. Between 3 and 12 nautical miles from the baseline equal to or higher than -75 dBm/200 kHz:
    - c. Discontinuous transmission<sup>23</sup> shall be activated in the MCV system uplink direction,
    - d. The timing advance<sup>24</sup> value of the vessel-BS shall be set to the minimum.

---

<sup>20</sup> One nautical mile = 1,852 metres

<sup>21</sup> ACCMIN (RX\_LEV\_ACCESS\_MIN); as described in GSM standard ETSI TS 144 018

<sup>22</sup> RXLEV (RXLEV-FULL-SERVING-CELL); as described in GSM standard ETSI TS 148 008

<sup>23</sup> Discontinuous transmission, or DTX; as described in GSM standard ETSI TS 148 008

<sup>24</sup> Timing advance; as described in GSM standard ETSI TS 144 018