

---

---

**Information technology —  
Telecommunications and information  
exchange between systems — MAC and  
PHY for operation in TV white space**

*Technologies de l'information — Télécommunications et échange  
d'information entre systèmes — MAC et PHY pour opération en espace  
blanc TV*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	vii
Introduction.....	viii
<b>1</b> <b>Scope</b> .....	<b>1</b>
<b>2</b> <b>Conformance</b> .....	<b>1</b>
<b>3</b> <b>Normative references</b> .....	<b>1</b>
<b>4</b> <b>Terms and definitions</b> .....	<b>1</b>
<b>5</b> <b>Abbreviations and Acronyms</b> .....	<b>4</b>
<b>6</b> <b>General description</b> .....	<b>7</b>
<b>6.1</b> <b>Network components</b> .....	<b>7</b>
<b>6.2</b> <b>Network formation</b> .....	<b>7</b>
<b>6.3</b> <b>Protocol architecture</b> .....	<b>8</b>
<b>6.4</b> <b>Addressing</b> .....	<b>9</b>
<b>6.5</b> <b>PHY features</b> .....	<b>9</b>
<b>6.6</b> <b>Overview of MAC service functionality</b> .....	<b>10</b>
<b>6.6.1</b> <b>Logical groups</b> .....	<b>11</b>
<b>6.6.2</b> <b>Control algorithms</b> .....	<b>11</b>
<b>6.6.3</b> <b>Channel selection</b> .....	<b>11</b>
<b>6.6.4</b> <b>The superframe</b> .....	<b>11</b>
<b>6.6.5</b> <b>Beaconing</b> .....	<b>12</b>
<b>6.6.6</b> <b>Medium access</b> .....	<b>13</b>
<b>6.6.7</b> <b>Data communication between devices</b> .....	<b>13</b>
<b>6.6.8</b> <b>MAC frame data rates</b> .....	<b>13</b>
<b>6.6.9</b> <b>Security</b> .....	<b>13</b>
<b>6.6.10</b> <b>Information discovery</b> .....	<b>14</b>
<b>6.6.11</b> <b>Support for higher-layer timer synchronization</b> .....	<b>14</b>
<b>6.6.12</b> <b>Protection of incumbent users</b> .....	<b>14</b>
<b>6.6.13</b> <b>Self-coexistence</b> .....	<b>14</b>
<b>6.6.14</b> <b>Rate adaptation</b> .....	<b>15</b>
<b>6.6.15</b> <b>Power management</b> .....	<b>15</b>
<b>7</b> <b>MAC common part sublayer</b> .....	<b>15</b>
<b>7.1</b> <b>MAC Frame Format</b> .....	<b>15</b>
<b>7.1.1</b> <b>Frame format conventions</b> .....	<b>16</b>
<b>7.1.2</b> <b>General MAC frame format</b> .....	<b>16</b>
<b>7.1.3</b> <b>Beacon frames</b> .....	<b>22</b>
<b>7.1.4</b> <b>Control frames</b> .....	<b>24</b>
<b>7.1.5</b> <b>Command frames</b> .....	<b>27</b>
<b>7.1.6</b> <b>Data frames</b> .....	<b>35</b>
<b>7.1.7</b> <b>Aggregated data frames</b> .....	<b>35</b>
<b>7.1.8</b> <b>Information elements</b> .....	<b>35</b>
<b>7.2</b> <b>Frame processing</b> .....	<b>63</b>
<b>7.2.1</b> <b>Frame addresses</b> .....	<b>63</b>
<b>7.2.2</b> <b>Frame reception</b> .....	<b>64</b>
<b>7.2.3</b> <b>Frame transaction</b> .....	<b>64</b>
<b>7.2.4</b> <b>Frame transfer</b> .....	<b>65</b>
<b>7.2.5</b> <b>Frame retry</b> .....	<b>65</b>
<b>7.2.6</b> <b>Inter-frame space (IFS)</b> .....	<b>65</b>
<b>7.2.7</b> <b>Duplicate detection</b> .....	<b>66</b>
<b>7.2.8</b> <b>RTS/CTS use</b> .....	<b>66</b>