RFID in Singapore

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(Related Articles: RFID in China)

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1 Regulation

The radio frequency band usage in Singapore is regulated by the InfoComm Development Authority (IDA; www.ida.gov.sg) under the Ministry of Information, Communications and the Arts (MICA). The frequencies commonly used in Singapore for RFID applications are shown in the following table.

<table>
<thead>
<tr>
<th>Authorized Frequency Band</th>
<th>Maximum Field Strength/Field Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>125–135 kHz</td>
<td>3.25 W</td>
</tr>
<tr>
<td>13.55–14.5 MHz</td>
<td>&lt; 24 dB µV/m at 10 m</td>
</tr>
<tr>
<td>433.75–434.79 MHz</td>
<td>&lt; 10 mW ERP</td>
</tr>
<tr>
<td>866–869 MHz</td>
<td>&lt; 500 mW ERP</td>
</tr>
<tr>
<td>920–925 MHz</td>
<td>&lt; 500 mW ERP (no license needed)</td>
</tr>
<tr>
<td>2.4006–2.4835 GHz</td>
<td>&lt; 100 mW ERP</td>
</tr>
</tbody>
</table>

For nonregistered RFID equipment, entities that intend to conduct trials may apply for a technical trial license from IDA for a period of up to 90 days.

In May 2004, IDA launched a three-year, S$10 million plan to develop RFID technology.

Their ABC plan encompasses three key thrusts:

1. Alignment of frequency spectrum for global interoperability
2. Building of capabilities to develop new intellectual property
3. Collaboration to catalyze adoption of RFID in key industry sectors

IDA launched a Call for Collaboration (CFC) in November 2004 to develop more RFID capabilities in the various industries in Singapore. Twelve proposals were short-listed for presentation to an evaluation panel. At the end of 2005, successful proposals were informed of the level of funding to help get these RFID project started. IDA released more information on these projects through seminars and write-ups when they are completed in 2006 and 2007.

IDA recognized the importance of frequency allocation with respect to cross-border trading. As such, it has worked with regulators in the Asia Pacific to harmonize RFID frequency allocation. The result of this work can be seen in Figure 1.

2 Standards
GS1 Singapore Council (www.gs1.org.sg), which was renamed in January 2005 from Singapore Article Number Council (SANC), has been around since 1987, when it was appointed by Singapore Trade Development Board to implement and administer an international article numbering system (EAN_UCC System) in Singapore. EPCglobal Singapore is under the purview of GS1 Singapore. As at December 2005, EPCglobal Singapore has four members that are issued with a unique EPC manager number. With GS1 actively promoting EPC RFID, this number is expected to grow by several fold over the next couple of years as EPC is adopted by more players in the industry.

![Figure 1: Harmonized RFID Frequency Allocation In Asia Pacific.](image)

GS1 Singapore had hosted several key RFID meetings. For example, the Ballot Resolution Meeting (BRM) was held here in June 2005 to incorporate EPC Gen 2 into ISO/IEC/18000-6 Part C. A total of 174 comments were resolved at the BRM. Most were editorial in nature, while others were minor technical changes. The outcome of this meeting is a draft standard incorporating all the comments for voting as ISO standard in February 2006.

The other key meetings were EPCglobal Transport and Logistics Services Business Action Group (TLS BAG) in July 2005, GS1 Asia-Pacific Regional Forum held in November 2005, where a quarter of the two days agenda was taken up by discussions on EPC RFID, and EPC global RFID Singapore Forum in June 2006.

Singapore is actively involved in the development of a standard for RFID electronic seals for freight containers. The working group has expert members from Denmark, Germany, Israel, the Netherlands, Singapore, Sweden, the United Kingdom, and the United States. The proposed standard, ISO 18185, provides a system to identify and present information on freight container electronic seals. When approved and published, this will be the first Singapore-originated ISO standard. The Standards, Productivity and Innovation Board (SPRING, www.spring.gov.sg) Singapore is also working on the implementation of this standard with various industry players, both locally and overseas.

3 Major Institutions in Developing and Testing RFID

Various RFID solution centers have been set up in Singapore. Some centers are focused on R&D, while others are here to help businesses test and pilot RFID systems before implementing them in their own operations.

**These centers are as follows:**