

# UHF RFID 技术应用的发展与最佳实践

内地与香港图书馆及UHF RFID 业界交流会

暨 高校图书馆「UHF RFID应用」工作小组第三次工作会议

The Development and Best Practices of  
UHF RFID Technology Applications  
Mainland and Hong Kong Libraries —  
Exchange Forum with UHF RFID Practitioners  
cum 3rd Meeting of the Higher Education Libraries  
“UHF RFID Application” Working Group

深圳 Shenzhen

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Mainland and Hong Kong Libraries – Exchange Forum with UHF RFID Practitioners

Cum 3rd Meeting of the Higher Education Libraries “UHF RFID Application” Working Group

**主办单位** 高校图书馆 UHF RFID 技术应用工作  
小组 (工作小组成员包括 香港城市  
大学图书馆、上海交通大学图书馆、  
清华大学图书馆)

香港货品编码协会



**Hosted by** The Higher Education Libraries  
"UHF RFID Application"  
Working Group (Working Group  
members include libraries of the  
City University of Hong Kong,  
Shanghai Jiao Tong University and  
Tsing Hua University)  
GS1 Hong Kong

**承办单位** 香港城市大学知识转移处

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18 March 2011 City University of Hong Kong (Shenzhen) Research Institute Building

本报告旨在纪录内地与香港图书馆及 UHF RFID 业界交流会 暨 高校图书馆「UHF RFID 应用」工作小组第三次工作会议之详情与相关资料。全报告只供内部参考，不作任何出版用途。

This Report is a record of the proceedings and relevant information of the Exchange Forum with UHF RFID Practitioners Cum 3rd Meeting of the Higher Education Libraries “UHF RFID Application” Working Group. For internal use only.

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## 前言

超高频（UHF）射频识别（RFID）技术广泛应用于物流业，其性能在不同行业和业务的供应链中已经得到了肯定，但在图书馆领域却仍处于起步阶段，还有创新应用和发展的广阔空间。因此，UHF RFID 业界非常关注这个潜在的市场。随着有关的技术逐步渗透入图书馆领域，预计市场的需求将会是巨大的。而图书馆方面则热切希望更多了解 UHF RFID 的最新技术发展，并期待有关技术能提供实际的应用方案，帮助图书馆提高服务效率。

「供給」、「需求」是任何新科技酝酿的必然经济因素，但为新科技在技术和操作层面上制定良好的标准也同样重要，可以决定新科技能否得到广泛应用并发挥出最大的作用。同样地，UHF RFID 能否被图书馆广泛采用并得到最大收益也取决于相同的因素。作为 UHF RFID 供应方的业界和需求方的图书馆，必须对 UHF RFID 技术的性能有相同的了解，并就如何应用技术以满足图书馆的实际需要有着共同的理念及愿景。图书馆要有适用于图书馆界的 UHF RFID 标准，因此数据模型的标准化及应用层面上的共识尤为重要，可以保证技术开发周期的互操作性、可靠性、可持续性和兼容性，将实施成本降到最低，并能减少图书馆对某些供应商的依赖。

图书馆、UHF RFID 业界以及标准组织三方如能互相沟通，分享心得，将有助于發展双赢解决方案和创新应用的出现。

因此，本次会议的目的是为三方合作提供机会，作为分享见解、表达需求、找出共同关注面、确立最佳实践、了解新发展和趋势、展示新产品、讨论和制定标准等的一个交流平台。藉着本次会议，筹办单位希望可以帮助图书馆在利用 UHF RFID 技术的同时，能够得到最大的成本效益。

会议筹办单位之一《高校图书馆“UHF RFID 应用”工作小组》（以下简称为工作小组）成立于 2010 年 3 月，发起成员包括香港城市大学图书馆、清华大学图书馆和上海交通大学图书馆。在 2010 年 3 月举行成立会议后，工作小组于 2010 年 8 月 20 日在深圳举行了第二次会议，同大陆及香港地区的图书馆代表会面，并讨论了 UHF RFID 数据模型标准。通过与图书馆界横向联系，共同面对采纳一项新技术所关心的问题作为开端，激发了工作小组同 UHF RFID 业界及专长于标准的组织进行纵向联系的愿望。所以，工作小组与香港货品编码协会共同合办本次会议，希望邀请各方代表讨论 UHF RFID 在图书馆应用的前景。本次会议也得到香港城市大学知识转移处和城大研究院（深圳）有限公司帮忙承办。

本次会议主题包括：(i) UHF RFID 技术，(ii) UHF RFID 图书馆数据模型，(iii) 标准化问题，(iv)最佳实践。

长期以来，图书馆在学术界起着重要的作用，从知识创造到知识转移和传播，图书馆都是推动不同交互作用的重要媒介。会议集体智慧的成果将是关于 UHF RFID 的宝贵知识，不仅应该在地区层面上，而且应该在国际甚至是全球得到分享和传播，使更多的人受益，反映出图书馆的作用。我们希望与会者的经验和见解将缩短技术应用的时间，新应用者可以在已有的基础上进行开发，而不是从头开始。我们还期待能提出更多的创新 UHF RFID 解决方案来帮助提高图书馆服务效率。依靠每个图书馆的力量，在一致的标准和一般应用框架下，最终将会形成符合图书馆应用需求的最佳 UHF RFID 解决方案。



## Foreword

Ultra High Frequency (UHF) Radio Frequency Identification (RFID) is no stranger to the logistics sector where the technology has been widely used with proven performance throughout the supply chains of different industries and businesses. However, in the library arena, it is still of its infancy stage with ample room for innovative applications and new developments. Many UHF RFID practitioners therefore are keeping their eyes open on this potential market where the demand can be great as the technology gradually penetrates into the library field. Libraries, on the other hand, are eager to learn more about the latest development of the technology and look forward to practical UHF RFID solutions that can help improve their service efficiency.

While supply and demand are essential economic factors for any new technology to emerge, well established standards at the technical and operational level are equally crucial factors that determine whether the technology concerned can take off and contribute the most. For UHF RFID to be widely adopted in libraries with the maximum benefits, the same applies. UHF RFID practitioners on the supply side and the libraries on the demand side need to share the common vision and have the same understandings on the capability of the technology and how it can be applied to meet the practical needs in the library business. Standards specific to the application of the technology in libraries must be in place. Standardization in data model and consensus in common practices are therefore important. They ensure interoperability, reliability, sustainability and compatibility throughout the technology development cycle. This minimizes the cost of implementation and reduces libraries dependence upon specific vendors.

Stakeholders in the library arena and the UHF RFID field as well as standard organizations should get together to share views and exchange ideas. Their interception creates the dimension for win-win solutions and innovative applications to emerge.

The mission of the conference therefore is to create the opportunity and the platform for the three parties to get together. It serves as an exchange forum for great ideas to be shared, for needs to be understood, for concerns to be expressed, for best practices to be identified, for new developments and trends to be made aware of, for new products to be demonstrated, for standards to be discussed and formulated, and ..... The endless wish list underscores the



commitment of the conference organizer to achieve the most out of the UHF RFID technology.

The conference organizer, the Higher Education Libraries “UHF RFID Application” Working Group (hereafter, the Group), was formed in March 2010. Its founding members include libraries of the City University of Hong Kong, the Tsinghua University and the Shanghai Jiao Tong University. After the inaugural meeting in March 2011, the Group held its second meeting in Shenzhen on 20th August 2010 to meet with representatives from other libraries in the Mainland and Hong Kong to discuss UHF RFID data model standardization, among others. This horizontal integration within the library arena to face common issues in the adoption of a new technology is a start and has inspired the Group of the need to initiate the vertical connection with UHF RFID practitioners and organizations with expertise in standards. This conference therefore draws in representatives from these different stakeholders to discuss the way ahead for UHF RFID deployment in the library arena.

The conference consists of presentations under 4 different parts with different focuses. The four presentation parts are (i) The UHF RFID Technology, (ii) UHF RFID Library Data Model, (iii) Standardization Issues, and (iv) the Best Practices.

For ages, libraries have been playing an important role in the scholarly world. From knowledge creation to knowledge transfer and dissemination, libraries are important agents that facilitate the different interactions. Collective wisdom in the conference itself is valuable knowledge on UHF RFID that should be shared and disseminated not just at the regional level, but internationally or even globally to benefit more. This echoes the roles of libraries. We hope that experiences and views of the participants will help shorten the technology emergence time as new players do not start from the scratch but base their new developments on what their predecessors have done. We look forward to more innovative UHF RFID solutions that help improve library service efficiency. With each library's individual strength, optimal UHF RFID solutions relevant to the specific situation of each library will come forth within a framework of agreed standards and common practices.

## 会议流程

8:15 – 9:30	会议注册
<p>开幕典礼 主持人: 清华大学图书馆馆长 邓景康教授</p>	
9:30 – 9:35	<p>欢迎致辞 香港城市大学邵逸夫图书馆 大学图书馆馆长 景祥祜教授</p>
9:35 – 9:40	<p>领导致辞 香港城市大学 协理副校长（知识转移）黄汉仪先生</p>
9:40 – 9:55	集体合影
9:55 – 10:10	茶 歇
<p>报 告 第一部分：超高频射频识别技术 主持人: 上海交通大学图书馆 郑巧英副馆长</p>	
10:10 – 10:25	<p>报告 1: 图书馆 <b>RFID</b> 应用技术探讨：标签、数据模型与应用展示 上海交通大学图书馆 陈嘉懿先生</p>
10:25 – 10:40	<p>报告 2：图书馆应用 <b>UHF</b> 的认知与浅析 清华大学图书馆 姜爱蓉副馆长</p>
10:40 – 10:55	<p>报告 3：图书馆 <b>UHF RFID</b> 标签之选择 香港城市大学邵逸夫图书馆 叶文泰先生 资讯科技主任 及 刘立辉先生 技术主任</p>
<p>报 告 第二部分：图书馆超高频射频识别数据模型 主持人: 上海交通大学图书馆 郑巧英副馆长</p>	
10:55 – 11:10	<p>报告 1：图书馆 <b>UHF RFID</b> 数据模型评估及经验分享 香港城市大学邵逸夫图书馆 郑世福先生 高级电脑主任/设备管理主任</p>
<p>报 告 第三部分：标准化问题 主持人: 香港浸会大学 陈启仙 副馆长及署理馆长</p>	
11:10 – 11:25	<p>报告 1：图书馆 <b>RFID</b> 数据模型标准工作进程 中国国家图书馆 董曦京先生 国家图书馆副研究馆员</p>
11:25 – 11:40	<p>报告 2：无线射频识别技术 (<b>RFID</b>)与图书行业 香港货品编码协会 孙国江先生 总工程师及首席顾问</p>

11:40 – 12:40	问答讨论时间
12:40 – 13:40	午 餐*
<p style="text-align: center;">报 告 第四部分：最佳实践 主持人： 浙江大学图书馆 黄晨副馆长</p>	
13:40 – 13:55	<p>报告 1：RFID 与物联网应用工程技术 上海交通大学现代物流信息技术与 RFID 研究所/上海张江 RFID 与物联网应用测试公共服务平台 王东博士 软件学院/上海 RFID 产业联盟秘书长</p>
13:55 – 14:10	<p>报告 2：UHF RFID 在图书管理中的应用 上海交通大学信息安全工程学院 李林森博士 副教授</p>
14:10 – 14:25	<p>报告 3：联合国际学院学习资源中心（图书馆）RFID 系统应用情况 北京师范大学香港浸会大学联合国际学院 吴晓嘉先生 联合国际学院学习资源中心系统与网络部副主任</p>
14:25 – 14:45	<p>报告 4：e-Charm Management System（啬色园灵签管理系统） 啬色园 「香港无线射频识别大奖 2010」最具创意 EPC/RFID 应用大奖 银奖得主 柯伟顺先生 啬色园董事</p>
14:45 – 15:00	茶 歇
<p style="text-align: center;">主持人： 清华大学图书馆 姜爱蓉副馆长</p>	
15:00 – 15:15	<p>报告 5: 超高频 RFID 与图书管理-技术和应用新进展 深圳市远望谷信息技术股份有限公司 冯汉炯先生 研发经理</p>
15:15 – 15:30	<p>报告 6: 图书馆周边发展趋势 香港通讯(系统)有限公司 张应心先生 总监</p>
15:30 – 16:30	问答讨论时间
<p style="text-align: center;">闭幕式</p>	
16:30 – 16:45	<p>闭幕式致辞 上海交通大学图书馆馆长 陈进教授</p>

\* 由于负责报告韩国延世大学图书馆应用 UHF RFID 情况的公司有关代表 (LS Industrial System Co. Ltd.) 临时因事未能出席会议，大会安排在午餐时段播放有关报告。

## Programme Rundown

8:15 – 9:30	<b>Registration</b>
<b>Opening Ceremony</b> <b>Hosted by</b> <b>Professor Deng Jinkang, Librarian, Tsinghua University Library</b>	
9:30 – 9:35	<b>Welcome Remark</b> Professor Steve Ching, University Librarian, City University of Hong Kong
9:35 – 9:40	<b>Opening Remark</b> Mr. H Y Wong, Associate Vice-President (Knowledge Transfer) , City University of Hong Kong
9:40 – 9:55	<b>Group Photo</b>
9:55 – 10:10	<b>Tea Break</b>
<b>Presentations</b> <b>Part 1: The UHF RFID Technology</b> <b>Facilitator</b> <b>Ms. Zheng Qiaoying, Deputy Librarian, Shanghai Jiao Tong University Library</b>	
10:10 – 10:25	<b>Presentation 1:</b> <b>RFID Technologies for Libraries : Tags, Data Model and Applications</b> Shanghai Jiao Tong University Library Mr. Chen Jiayi
10:25 – 10:40	<b>Presentation 2:</b> <b>Deployment of UHF RFID in Libraries – Views and Thoughts</b> Tsinghua University Library Ms. Jiang Airong Deputy Librarian
10:40 – 10:55	<b>Presentation 3: The Choice of RFID Tags for Libraries</b> City University of Hong Kong Run Run Shaw Library Mr. Henry Ip Information Technology Officer Mr. Lau Lap Fai Technical Officer
<b>Presentations</b> <b>Part 2: UHF RFID Library Data Models</b> <b>Facilitator</b> <b>Ms. Zheng Qiaoying, Deputy Librarian, Shanghai Jiao Tong University</b>	
10:55 – 11:10	<b>Presentation 1: UHF RFID Library Data Models – Evaluation and Experience Sharing</b> City University of Hong Kong Run Run Shaw Library Mr. Michael Cheng Computer Officer/Equipment Management Manager

**Presentations**

**Part 3: Standardization Issues**

**Facilitator:**

**Ms. Kylie Chan, Associate Librarian and Acting University Librarian,  
Hong Kong Baptist University**

11:10 – 11:25	<b>Presentation 1 : Library Data Model Standardization – the Progress</b> National Library of China 董曦京先生 国家图书馆副研究馆员
11:25 – 11:40	<b>Presentation 2 : Radio Frequency Identification Technology (RFID) and Library Business</b> GS1 Hong Kong Mr. Suen Kwok Kong Chief Architect & Principal Consultant
11:40 – 12:40	<b>Questions and Answers</b>
12:40 – 13:40	<b>Lunch Break*</b>

**Presentations**

**Part 4: The Best Practice**

**Facilitator:**

**Mr. Huang Chen, Deputy Librarian, Zhejiang University Library**

13:40 – 13:55	<b>Presentation 1 : RFID and Internet of Things Application Technology</b> E-Logistics and RFID Research Institute, Shanghai Jiao Tong University / Shanghai Zhangjiang RFID and IOT Test Center Dr. Wang Dong Director E-logistics and RFID Research Institute, School of Software, Shanghai Jiao Tong University
13:55 – 14:10	<b>Presentation 2 : UHF RFID 在图书管理中的应用</b> Shanghai Jiao Tong University School of Information Security Engineering 李林森博士 副教授
14:10 – 14:25	<b>Presentation 3 : RFID Applications in United International College Learning Resources Centre (Library)</b> Beijing Normal University and Hong Kong Baptist University United International College Learning Resources Centre (Library) Mr. Glen Wu Deputy Head of System and Network Section
14:25 – 14:45	<b>Presentation 4: e-Charm Management System</b> Sik Sik Yuen “HK RFID Awards 2010 – Most Innovative Use of EPC/RFID” Silver Award Mr. Or Wai Shun, Wilson Director, Sik Sik Yuen
14:45 – 15:00	<b>Tea Break</b>



<b>Facilitator:</b> <b>Ms. Jiang Airong, Deputy Librarian, Tsinghua University Library</b>	
15:00 – 15:15	<b>Presentation 5: UHF RFID and Library Management – Latest Development in Technology and Applications</b> Invengo Information Technology Co., Ltd Mr. Feng Hanjiong Research and Development Manager
15:15 – 15:30	<b>Presentation 7: Technology Development at the Peripheries of Libraries</b> Hong Kong Communications Co. Ltd. Mr. Ray Cheung Deputy CEO (RFID & Computer Division)
15:30 – 16:30	<b>Questions and Answers</b>
<b>Closing Ceremony</b>	
16:30 – 16:45	<b>Closing Remarks</b> Professor Chen Jin, Librarian, Shanghai Jiao Tong University Library

\* The representative from the company (LS Industrial System Co. Ltd.) that was responsible for presenting the UHF RFID case of the Yonsei University Library in Korea was not able to show up in the conference because of some unexpected incidents. The conference organizer therefore has arranged to show the presentation materials concerned during the lunch session.





会议报告第一部分：超高频射频识别技术

**Presentations Part 1: The UHF RFID Technology**

