**Title:** D5.3: Standardization Summary Report for Y1 and Plan for Y2

<table>
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<tr>
<th>Project Number:</th>
<th>Project Acronym:</th>
<th>Project Title:</th>
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<tr>
<td>045461</td>
<td>MING-T</td>
<td>Multistandard Integrated Network convergence for Global Mobile and Broadcast Technologies</td>
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<tr>
<th>Contractual Delivery Date:</th>
<th>Actual Delivery Date:</th>
<th>Deliverable Type* - Security**:</th>
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<tr>
<td>31/12/2007</td>
<td>07/10/2008</td>
<td>REPORT, PUBLIC</td>
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* Type: P – Prototype, R – Report, D – Demonstrator, O – Other
** Security Class: PU – Public, PP – Restricted to other programme participants (including the Commission), RE – Restricted to a group defined by the consortium (including the Commission), CO – Confidential, only for members of the consortium (including the Commission)

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<th>Responsible and Editor/Author:</th>
<th>Organization:</th>
<th>Contributing WP:</th>
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**Abstract:**

The MING-T project deliverable D5.3 Standardization Summary Report for Y1 and Plan for Y2 summarizes the achievements in Y1 (2007) for standardization activities, e.g. proposals submitted, promoting the research results to different standardization bodies and conferences attending. The standardization plan for Y2 (2008) is also presented in this document.

**Keywords:**

Standardizations, OMA, ETSI, SARFT
**Revision History**

The following table describes the main changes done in the document since created.

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<th>Revision</th>
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<tr>
<td>v0.1</td>
<td>06/08/2008</td>
<td>First draft of the document</td>
<td>Yabin Ye (CN)</td>
</tr>
<tr>
<td>V0.2</td>
<td>11/09/2008</td>
<td>Including standardization activities from NSN, THU</td>
<td>Yabin Ye (CN)</td>
</tr>
<tr>
<td>V0.3</td>
<td>15/09/2008</td>
<td>Including DMMB proposal from THU</td>
<td>Yabin Ye (CN)</td>
</tr>
<tr>
<td>V0.4</td>
<td>17/09/2008</td>
<td>Including standardization activities from Enensys</td>
<td>Yabin Ye (CN)</td>
</tr>
<tr>
<td>V1.0</td>
<td>30/09/2008</td>
<td>Including comments from other partners</td>
<td>Yabin Ye (CN)</td>
</tr>
<tr>
<td>V1.1</td>
<td>07/10/2008</td>
<td>Including comments from UGOE and THU, proofreading</td>
<td>Yabin Ye (CN), Norman Hendrich (UHH)</td>
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Executive Summary

This document, deliverable D5.3 "Standardization Summary Report for Y1 and Plan for Y2", summarizes the achievements of project MING-T in regard to standardization activities during the first year (Y1, 2007) of the project runtime. It lists the proposals submitted, promoting the research results to different standardization bodies, and the conferences/meetings attended. The standardization plan for Y2 (2008) is also presented in this report.
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1. Introduction

One of the important tasks of the project is to actively contribute to the standardization of innovative mobile broadcast convergence technologies, which could be deployed as result of the research – development – prototype – evaluation process.

The MING-T project plans to participate in or to follow the following standardization activities (e.g., by contributing proposals, participating in standardization body meetings, or mailing list discussions, etc.):

ETSI: ETSI Mobile Competence Center (MCC), Radio Competence Center (RCC) and Technical Committee BROADCAST – development of mobile, radio and television, broadcast, and policy regulation/harmonization technologies and their standardizations
IEEE: IEEE 802.21 – Media Independent Handover Services
3GPP: Standardization of 3G and beyond architecture, protocols, and systems.
OMA: Open Mobile Alliance
WWRF: World Wireless Research Forum

In the first year, MING-T partners have already carried out many activities in this domain. Specifically, both CTBRI and NSN submitted several proposals to OMA; THU submitted the DMMB proposal to SARFT; the research results from MING-T have been promoted to Hong Kong ASTRI and China MITT; MING-T partners also actively attended different standardization body meetings; THU and UGOE have made initial contacts with ETSI. More details will be presented in the following sections.

The standardization plan for Y2 (2008) is presented in section 5 of this document.
2. Proposals submitted to OMA

2.1 Proposals from CTBRI

2.1.1 OMA-BCAST-2007-0581-INP_Subscribe_Multimedia_Clip_As_Customized_Ring_Back_Tone_in_MTV

This proposal suggests subscribing multimedia clip as customized ring back tone (RBT) in MTV. RBT integrated with BCAST will be an enhancement of BCAST interactivity function. Considering RBT in MTV can enrich mobile TV services, be a popular value-added service, make it easier for the end user to subscribe a video clip or a song as RBT when he/she is watching a TV program in his/her mobile phone, and improve user experience by simplify the procedure of RBT subscription.

2.1.2 OMA-BCAST-2007-0673-INP_Support_Wifi_Access_Network_As_Interactive_Channel

This proposal suggests using WiFi access as interactive channel in OMA BCAST. One of main functions of the interactive channel is to provide user identity to service platform, WiFi access can achieve this. There are several resolutions: First, if an operator has WiFi and cellular simultaneously, and the terminal supports EAP-AKA or EAP-SIM, the WiFi terminal can provide user identity by EAP-AKA/EAP-SIM procedure. If an operator has WiFi access only, AAA Server should have the information of user, AAA server can share the user information with service platform across the interface between them; if WiFi access is a free service, service platform itself can manage user information, in all these cases service platform can get the user identity and generate the SEK for user. Over the WiFi access, http and WAP protocol can be used to interchange service information between terminal and network, from this point it is similar as cellular network. So we suggest using WiFi as interactive channel.

2.1.3 OMA-BCAST-2007-0674-INP_Support_Wimax_Access_Network_As_Interactive_Channel

This proposal suggests using WiMAX access as interactive channel in OMA BCAST. One of main functions of the interactive channel is to provide user identity to service platform, WiMAX access can achieve this. There are several resolutions. First, if an operator has WiMAX and cellular simultaneously, and the terminal support EAP-AKA or EAP-SIM, WiMAX terminal can provide user identity by EAP-AKA/EAP-SIM procedure. If an operator has WiMAX access only, AAA Server should have the information of user, AAA server can share the user information with service platform across the interface between them; if WiMAX access is free service, service platform itself can manage user information, in all these cases service platform can get the user identity and generate the SEK for user. Over the WiMAX access, http and WAP protocol can be used to interchange service information between terminal and network, from this point it is similar as cellular network. So we suggest using WiMAX as interactive channel.

2.1.4 OMA-BCAST-2007-0675-INP_Service_protection_base_on_CS_domain

This proposal suggests BCAST 1.1 SHALL to support service protection based on Circuit Switch domain in mobile network.
To avoid bad user experience, BCAST SHALL consider providing multiple choices for service protection. In BCAST1.0, the standard only considers service protection in PS domain. But there are some situations exists that the subscriber can receive mobile TV signal from broadcast network but cannot access PS interactive. The subscriber cannot renew SEK/PEK when they are expired. The subscriber will feel frustrated because he/she still can make a phone call or send a SMS, just cannot retrieve the key subscribed.

Assume the coverage of the control plane in CS domain is bigger than the coverage of the PS domain in mobile network. When a subscriber is in a weak signal spot, such as inner building, elevator, subway, a crowd place or a roaming area without PS roaming agreement, he/she cannot make a phone call or access packet channel, but still can connect control plane. So the proposal suggests BCAST1.1 SHALL to support subscriber authorization and send LTKM messages in CS domain when subscriber is not accessible in PS interactive channel, which can reduce the possibility that LTKM is not retrievable. The coverage of broadcast network is bigger than the coverage of PS channel. Because the broadcast data is carried by service channel and the PS data is carried in signal channel. The signal channel needs a lower bandwidth and higher priority than PS channel. The subscriber still can receive SMS when he/she cannot access PS channel. That is the reason why this proposal suggest BCAST should consider service protection SHALL be based on CS domain.

2.2 Proposals from NSN

2.2.1 OMA-BCAST-2007-0691-CR_TOI_Size_in_TS_services

This CR changes the data type of the occurrence of TransportObjectID in NotificationMessage from unsignedInt to positiveInteger, to allow values greater than 32bits. This is in line with other occurrences of TOI in TS SG and TS Sevices data model tables as well as the FLUTE spec.

The CR has been triggered by Problem Report #0006 even though the original PR did only address the issue for TS SG. However, the same problem also existed in TS Services.

2.2.2 OMA-BCAST-2007-0692-CR_TOI_Size_in_TS_SG

This CR changes the data type of the occurrence of TransportObjectID in SGDD from unsignedInt to positiveInteger, to allow values greater than 32bits. This is in line with other occurrences of TOI in TS SG and TS Sevices data model tables as well as the FLUTE spec.

2.2.3 OMA-BCAST-2007-0705-CR_Special_ID_SG_Backend_Interfaces

This CR has been triggered by the action assigned to me to check with OMNA what identifier is best used as the special ID to register for all subscribed services (see CRs 616, 618, 619). It brings the special ID “oma:bcast:unknown” that has been defined defined in TS SG in line with the syntax “oma-bcast-allservices” that we use in the above-mentioned CRs.

This CR changes the special ID “oma:bcast:unknown” into “oma-bcast-unknown”, to become a local URI.

(Background information: As this ID is a URI, it must adhere to the URI syntax in RFC3986. The first colon in a URI terminates the URI scheme. In the syntax we use currently, “oma” would be
the URI scheme. According to RFC4395, URI schemes must be registered. Using “-“ instead of “:”, this becomes a local URI with no scheme, not needing to be registered (but bearing special meaning according to our spec)).

2.2.4 OMA-BCAST-2007-0802R01-CR_SG_PR0001 Resolution

PR 0001 states: “The service guide fragment descriptions indicate inconsistent information in the category and cardinality columns. There are several instances where category is stated NM/TM and the associated cardinality is stated 0..1 There are also instance where category is stated NO/TM and associated cardinality is stated 1. The problem occurs at instances identified but is not limited to these.”

This PR is related to Consistency Review comment SG 236 and resulting CR by CR BCAST-2006-0865.

R01 implements the way forward decided in the discussion in Vancouver. The basic assumption will be the following: children of “xO” (O, NO, TO) elements may be either “xO” or “xM”. If there is an ancestor with category “xO”, “xM” items become “conditional mandatory”, meaning they MUST be supported if all “xO” ancestors are supported.

Further, if the cardinality is greater than zero, an item must be classified as “xM”. This constraint accounts for most of the changes in this CR. After applying further CRs to the spec, the online tool maintained by Ilkka Oksanen under http://bcast.portaali.org/sanity-check.pl can be used to check if this condition is still met. Elements/Attributes violating this will be marked with three red exclamation marks.
3. THU submitted DMMB Proposal to SARFT

In 2007, THU submitted the proposal called Digital Mobile Multimedia Broadcasting (DMMB) to the State Administration of Radio, Film and Television (SARFT) after DTMB was approved as the national standard of Chinese terrestrial digital TV transmission.

As the extension of DTMB, DMMB is designed for delivery of high-quality digital multimedia services for mobile, portable and fixed reception from terrestrial or satellite transmitters in the Very High Frequency (VHF), Ultra High Frequency (UHF), L or S bands in the frequency range from 30MHz to 3000MHz. The DMMB system uses the uplink cellular channels and the downlink broadcasting channels with 8MHz or 2MHz bandwidth for each radio-frequency (RF) channel. It supports various source encoding formats including the AVS, H.264, MPEG-2 and MPEG-4.

The DMMB system is called DMMB-W when using 8MHz bandwidth. Based on DTMB, DMMB-W incorporates several new features, including low-power consumption as well as provisions of mobile phone services. Thanks to the compatibility with DTMB, the terrestrial and mobile multimedia broadcasting programs can be broadcasted separately or jointly in one channel, which is suitable for the single transmitter operation and wide range SFN application. In DTMB, the signal is decomposed to a multi-layer frame structure. The basic element is the Signal Frame. The next higher layer holds the Super Frame, Minute Frame and Calendar Day Frame. To support the mobile phone reception of the digital multimedia broadcasting programme, the Control Frame and Second Frame are introduced in DMMB-W. In terms of channel coding and interleaving, the Reed-Solomon (RS) code and byte interleaver are added to further reduce the carrier/noise (C/N) threshold.

The DMMB system is called DMMB-N when using 2MHz bandwidth. For transmitting a mobile phone/mobile multimedia broadcasting programme in a narrow-band channel, the whole physical frame structure is further adapted to the single transmitter operation and SFN application in a limited range. Specifically, the signal of DMMB-N is composed of Second Frames. Each Second Frame, having a period of 1 second, consists of the Synchronization Channel, the Control Channel and the Service Channel. This mode acts as a complement for the 8MHz application mode.

DMMB supports various subscriber terminals including the mobile phone, PDA, personal media player and portable television receiver. Considering the specific application scenarios, the DMMB subscriber may be the mobile phone with mutual return channel, or without return channel. For the different application scenarios, two classes of service Management system are defined in DMMB, namely, enhanced broadcasting service Management and mutual service Management.

The enhanced broadcasting service Management is used for the operation scenario which focuses on broadcasting and non-3G mobile users. It defines the basic broadcasting service information and an uplink channel interface. This can be used to transmit user information of Management, authorization, billing and personal service in some specific channels such as short message service, GPRS, etc.

The mutual service Management is used for the operation scenario focusing on 4G mobile users. It defines the service Management system based on the 3GPP or 3GPP2 system. It has a very good security performance, comparatively high resource utilization, and easiness for developing various mutual applications.
4. **Other Standardization Activities**

4.1 **Efforts on promoting MING-T results**

4.1.1. THU contacted Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI), who is now developing a multi-standard platform including DVB-H, DAB, and DTMB and have forwarded them all the publicly available information of MING-T. ASTRI will possibly use the outcome of MING-T to promote their design and will contact OFTA (Office of Telecommunication Administration) in Hong Kong, the government agency for the standard, seeking for the possibility to put it into standardization process.

4.1.2. THU contacted Ministry of Information Technology (MII) to see if it is possible to put the outcome of MING-T into the Chinese standard process for the network convergence and we have also forwarded them all the publicly available information of MING-T.

4.2 **Standardization Conferences / Meeting Attendance**

4.2.1. CTBRI attended the OMA BCAST meeting in Jun. 2007
4.2.2. CTBRI attended the OMA BCAST meeting in Aug. 2007
4.2.3. Enensys attended DVB technical meeting hosted in Geneva in September 2007
4.2.4. Enensys attended BMCO annual session in July 2007
4.2.5. Enensys attended DVB technical modules meeting hosted in Geneva in November 2007
4.2.6. THU Participated in the evaluation meeting organized by Standardization Administration of China (SAC) for the Chinese handheld DTV standard.
4.2.7. THU Participated in the evaluation meeting organized by State Administration of Radio, Film and Television (SARFT) for the Chinese DTV terrestrial standard on the transmitter.
4.2.8. THU Participated the meeting organized by SAC for approval of the draft on the Chinese handheld DTV standard.

4.3 **Contacting with ETSI**

THU and UGOE have made initial contacts with ETSI Radio Competence Centre (RCC) Technical Officer, Mr. Marcello Pignozzi, concerning our possible participation in the Joint EBU/CENELEC/ETSI Technical Committee (JTC) on BROADCAST activities. MING-T intends to address the issue of multi-standard broadcast and mobile convergence technologies which is not directly related to the current scope of these ETSI technical bodies, and it was decided to keep watching on the ETSI activities and stay in touch with ETSI for the future possible development trends in the MING-T direction.
5. Standardization Plan for Year 2008

In Year 2008, MING-T project starts to have very important results. In order to contribute these research results to different standard bodies, specially, we plan to have the following activities:

1) The results from scalable video coding will be considered to contribute to DVB SVC working group or MPEG.
2) The research results will be contributed to Chinese standards, e.g. more contributions to DMMB (Digital Mobile Multimedia Broadcast) standard.
3) CTBRI and NSN continue the contributions to OMA.

Other activity plans include participating in more standardization body meetings or mailing list discussions for OMA, DVB-T2, BMCO, ETSI, IEEE, ITU, 3GPP and WWRF, etc.

Partners have already planned to some standardization meetings, e.g.:

23- 24/01/2008, DVB Technical Modules Meeting in Geneva
18- 22/02/2008, OMA BCAST meeting in Beijing
19- 20/03/2008, DVB Technical Modules Meeting in Geneva
03/04/2008, Beijing SAC terrestrial DTV evaluation meeting
15/04/2008, Beijing SAC handheld DTV drafting meeting
19- 26/04/2008, OMA BCAST meeting in Paris
22/04/2008 Beijing SAC handheld DTV drafting meeting
05/05/2008 Beijing SAC handheld DTV drafting meeting
06/06/2008 Beijing SAC handheld DTV drafting meeting
13/06/2008 Beijing SAC handheld DTV drafting meeting
17/06/2008 Beijing SARFT DTV evaluation meeting
22/06/2008 Beijing SAC handheld DTV approval meeting