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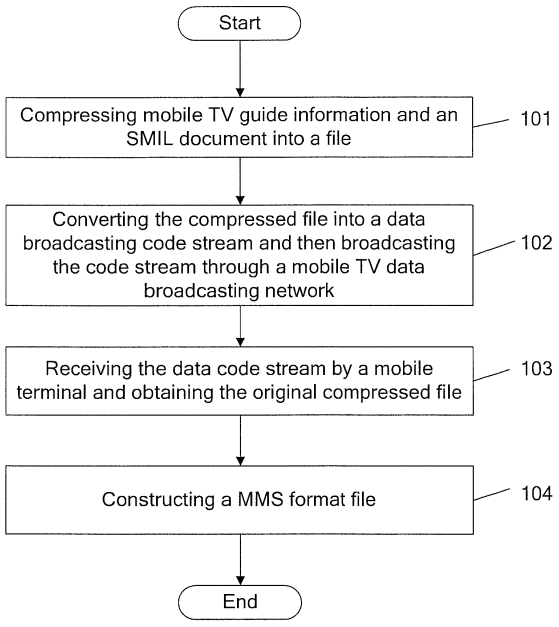
(54) METHOD, SYSTEM AND DEVICE FOR SENDING MOBILE TELEVISION GUIDE

(57) The present disclosure discloses a method for sending a mobile TV guide, including: compressing mobile TV guide information and a Synchronized Multimedia Integration Language (SMIL) document into a file, then converting the compressed file into data broadcasting code stream, and broadcasting the code stream through a mobile TV data broadcasting network; and receiving the data broadcasting code stream by a mobile terminal, obtaining the original compressed file from the data broadcasting code stream and constructing a MMS format file. The disclosure further discloses a system for sending a mobile TV guide and a mobile receiving terminal. The application of the present disclosure can enable the advantages of the ESG and common MMS to be combined, so that a large amount of TV guide information can be sent without affecting the loading speed or generating GPRS traffic cost.

Fig. 1



EP 2 509 239 A1

Description

TECHNICAL FIELD

[0001] The present disclosure relates to a broadcast communication technology, in particular to a method, system and device for sending a mobile television (TV) guide.

BACKGROUND

[0002] With the coming of the time of 3G, mobile TV-related technologies are increasingly becoming a research hotspot in the field of communications and electronics. In a mobile TV service, in order to enable a user to know mobile TV information conveniently and fast, a mobile TV operator needs to send TV guide information to a mobile terminal. In the prior art, such TV guide information is generally encapsulated in Electronic Service Guide (ESG) information of network broadcast, therefore all terminals need to be equipped with a private ESG browser for parsing and browsing. However, the ESG mainly includes necessary parameter information for playing a mobile TV, and a mobile TV guide file is always very large, thereby greatly affecting an ESG loading speed and bringing poor user experience. As a result, some operators select a Multimedia Messaging Service (MMS) to send a mobile TV guide, however this method also has an obvious defect, i.e. it sometimes brings unnecessary expense to a user because in this method a mobile TV guide is sent by an common MMS, it is certain that some General Packet Radio Service (GPRS) traffic will be brought when a terminal receives the mobile TV guide.

SUMMARY

[0003] In the prior art, a mobile TV guide is sent by an ESG or a common MMS. When an ESG is adopted, a large amount of data information cannot be carried, otherwise, the loading speed of the ESG will be affected; besides, a private ESG browser is required to be used. When a common MMS is adopted, a large amount of data information can be carried, but GPRS traffic cost will be brought to users to increase their cost. To overcome the defects of the prior art, the disclosure discloses a method, system and device for sending a mobile TV guide based on the combination of an ESG and a common MMS.

[0004] In order to fulfil the aim, the technical solution of the present disclosure is implemented as follows.

[0005] A method for sending a mobile TV guide, including:

compressing mobile TV guide information and a Synchronized Multimedia Integration Language (SMIL) document into a file, converting the compressed file into a data broadcasting code stream, and broadcasting the code stream through a mobile TV data broadcasting network; and

receiving the data broadcasting code stream by a mobile terminal, obtaining the original compressed file from the data broadcasting code stream and constructing a MMS format file.

[0006] Furthermore, the mobile TV guide information may include at least one of text, image, audio and video.

[0007] Furthermore, the mobile terminal, after receiving the data broadcasting code stream, may obtain the original compressed file from the data broadcasting code stream by calling a Contention Delivery Protocol (CDP).

[0008] Furthermore, the MMS format file may include MMS index information.

[0009] The present disclosure further provides a system for sending a mobile TV guide, including:

a sending server of a mobile TV data broadcasting network, which is configured to compress mobile TV guide information and an SMIL document into a file, then convert the compressed file into a data broadcasting code stream, and broadcast the code stream through the mobile TV data broadcasting network; and

a mobile terminal which is configured to receive the data broadcasting code stream, obtain the original compressed file from the data broadcasting code stream and construct a MMS format file.

[0010] Furthermore, the mobile terminal may include a MMS data adaption module which is configured to decompress the original compressed file and construct the MMS format file from the decompressed file.

[0011] Furthermore, the MMS format file may include MMS index information.

[0012] Furthermore, the mobile terminal may further include a broadcasting data receiving module which is configured to receive the data broadcasting code stream, demodulate and demultiplex the received data broadcasting code stream, and obtain the original compressed file from the data broadcasting code stream by calling a CDP.

[0013] The present disclosure further provides a mobile terminal, including:

a broadcasting data receiving module which is configured to receive a data broadcasting code stream, demodulate and demultiplex the received data broadcasting code stream, and obtain an original compressed file from the data broadcasting code stream by calling a CDP; and

a MMS data adaption module which is configured to decompress the original compressed file and construct a MMS format file from the decompressed file.

[0014] By adopting the technology of the disclosure, the advantages of the ESG and common MMS can be combined, so that a large amount of TV guide information can be sent without affecting the loading speed or generating GPRS traffic cost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

Fig. 1 is a flowchart of a method for sending a mobile TV guide according to the present disclosure;

Fig. 2 is a schematic diagram showing the structure of a system for sending a mobile TV guide according to the present disclosure; and

Fig. 3 is a flowchart of constructing a MMS file by a mobile terminal according to the present disclosure.

DETAIL DESCRIPTION

[0016] The technical solution of the present disclosure is further described below with reference to drawings and specific embodiments in detail.

[0017] The present disclosure provides a method for sending a mobile TV guide, as shown in Fig. 1, including:

step 101: compressing mobile TV guide information and a Synchronized Multimedia Integration Language (SMIL) document,
wherein the mobile TV guide information includes at least one of text, image, audio and video;

step 102: converting the compressed file into a data broadcasting code stream and then broadcasting the code stream through a mobile TV data broadcasting network;

step 103: receiving the data broadcasting code stream by a mobile terminal and obtaining the original compressed file from the data broadcasting code stream;
specifically, the mobile terminal, after receiving the data broadcasting code stream, obtains the original compressed file from the data broadcasting code stream by calling a Contention Delivery Protocol (CDP);
and step104: constructing a MMS format file by the mobile terminal according to the obtained original compressed file.

[0018] The constructed MMS format file includes MMS index information.

[0019] Corresponding to the method for sending a mobile TV guide, the present disclosure further provides a system for sending a mobile TV guide, as shown in Fig. 2, the system includes: a sending server of a mobile TV data broadcasting network (i.e., a server side in Fig. 2) and a mobile terminal, wherein the sending server of the mobile TV data broadcasting network is used for compressing mobile TV guide information and an SMIL document, then converting the compressed file into a data broadcasting code stream, and broadcasting the code stream through the mobile TV data broadcasting network; and the mobile terminal is used for receiving the data broadcasting code stream, obtaining the original compressed file from the data broadcasting code stream and constructing a MMS format file.

[0020] Furthermore, the mobile terminal includes a broadcasting data receiving module and a MMS data adaption module, wherein the broadcasting data receiving module is used for receiving the data broadcasting code stream which is broadcast by the mobile TV data broadcasting network, demodulating and demultiplexing the data broadcasting code stream, and obtaining the original compressed file from the data broadcasting code stream by calling a CDP; and the MMS data adaption module is used for decompressing the original compressed file and constructing a MMS format file by the decompressed file.

[0021] According to the technical solution of the present disclosure, the specific implementation of the technical solution is further described below.

[0022] First, a mobile TV service operator prepares a content file of a mobile TV guide on a mobile TV server (i.e., a mobile TV guide service centre shown in Fig. 2), wherein the contents include various files, such as text, image, audio and video. These contents can be displayed by either a slide or animation; and the specific displaying way is determined by an MMS application player supported by a specific mobile terminal. When the contents are displayed by the slide, an SIML document defines which text, image, audio and video should be displayed on each slide, as well as specific displaying time on each slide and other information.

[0023] The content file and the SIML document, after well constructed on the server, are compressed into one file in a certain way, such as compressed in a ZIP way, and sent to the mobile TV broadcasting network server side (i.e., the mobile TV broadcasting network service centre shown in Fig. 2).

[0024] Then, the mobile TV broadcasting network server side receives the compressed file, and then converts it into a data broadcasting code stream, and sends the data broadcasting code stream to the mobile TV broadcasting network after multiplexing and modulation.

[0025] Furthermore, the broadcasting data receiving module of the mobile TV terminal, after receiving the data broadcasting code stream, obtains the data broadcasting code stream after demodulation and demultiplexing, then acquires the compressed file of the mobile TV guide from the code stream by calling the CDP, and sends the compressed file to the MMS data adaption module of the mobile terminal.

[0026] Furthermore, the MMS data adaption module

of the mobile terminal constructs a common MMS from the received compressed file, saves the MMS into a MMS inbox and informs a user of the MMS received. As shown in Fig. 3, the process here is further described in detail as follows:

first, decompressing the compressed file to obtain the mobile TV guide content file and the SMIL document provided on the mobile TV server;

and then, constructing a MMS header of the mobile TV guide, including:

1, setting information of a sender, wherein the sender can be set as the number or name of a mobile TV operator, and the information is included in a file name or a file of the SMIL document;

2, setting sending time, wherein local receiving time is taken as the sending time here;

3, setting a subject of the MMS, wherein the subject can be set as the mobile TV guide + current date; and

4, setting other required fields of the MMS header according to field contents of a standard MMS.

[0027] Furthermore, the SMIL document and the original media file of the mobile TV guide contents are encapsulated into a MMS body of the mobile TV guide according to a Wireless Session Protocol (WSP), and then the MMS body is combined with the MMS header constructed in step 2 to form a MMS file of the mobile TV guide.

[0028] Furthermore, MMS index information is constructed for the MMS file, wherein the MMS index information includes information of the MMS header, the size of the MMS and other information.

[0029] Furthermore, the MMS file is saved into the MMS inbox of the mobile terminal, and a MMS index list in a mobile terminal memory is refreshed by the constructed index information.

[0030] At last, a ring tone is called to inform a user of a new MMS received.

[0031] By the processing in each process above, a user can casually browse, save and forward a MMS of a mobile TV guide after receiving this message.

[0032] To sum up, the above are only specific embodiments of the present disclosure, but not to limit the protection scope of the present disclosure. Any variation or replacement which can be easily thought of by those skilled in the art without departing from the scope of the present disclosure should be included in the protection scope of the present disclosure. Therefore, the scope of protection of the disclosure shall be defined by the scope of protection of the following claims.

Claims

1. A method for sending a mobile television (TV) guide, comprising:

   compressing mobile TV guide information and a Synchronized Multimedia Integration Language (SMIL) document into a file, converting the compressed file into a data broadcasting code stream, and broadcasting the code stream through a mobile TV data broadcasting network; and
   receiving, by a mobile terminal, the data broadcasting code stream, obtaining the original compressed file from the data broadcasting code stream and constructing a Multimedia Messaging Service (MMS) format file.

2. The method according to claim 1, wherein the mobile TV guide information comprises at least one of text, image, audio and video.

3. The method according to claim 1, further comprising: after receiving the data broadcasting code stream by the mobile terminal, obtaining the original compressed file from the data broadcasting code stream by the mobile terminal by calling a Contention Delivery Protocol (CDP).

4. The method according to claim 1, or 2, or 3, wherein the MMS format file comprises MMS index information.

5. A system for sending a mobile TV guide, comprising:

   a sending server of a mobile TV data broadcasting network, which is configured to compress mobile TV guide information and an SMIL document into a file, then convert the compressed file into a data broadcasting code stream, and broadcast the code stream through the mobile TV data broadcasting network; and
   a mobile terminal which is configured to receive the data broadcasting code stream, obtain the original compressed file from the data broadcasting code stream and construct a Multimedia Messaging Service (MMS) format file.

6. The system according to claim 5, wherein the mobile terminal comprises a MMS data adaption module which is configured to decompress the original compressed file and construct the MMS format file from the decompressed file.

7. The system according to claim 5 or 6, wherein the

MMS format file comprises MMS index information.

8. The system according to claim 5 or 6, wherein the mobile terminal further comprises a broadcasting data receiving module which is configured to receive the data broadcasting code stream, demodulate and demultiplex the received data broadcasting code stream, and obtain the original compressed file from the data broadcasting code stream by calling a Contention Delivery Protocol (CDP).

9. A mobile receiving terminal, which configured to receive a mobile TV guide, comprising:

a broadcasting data receiving module which is configured to receive a data broadcasting code stream, demodulate and demultiplex the received data broadcasting code stream, and obtain an original compressed file from the data broadcasting code stream by calling a Contention Delivery Protocol (CDP); and
a Multimedia Messaging Service (MMS) data adaption module which is configured to decompress the original compressed file and construct a MMS format file from the decompressed file.

Fig. 1

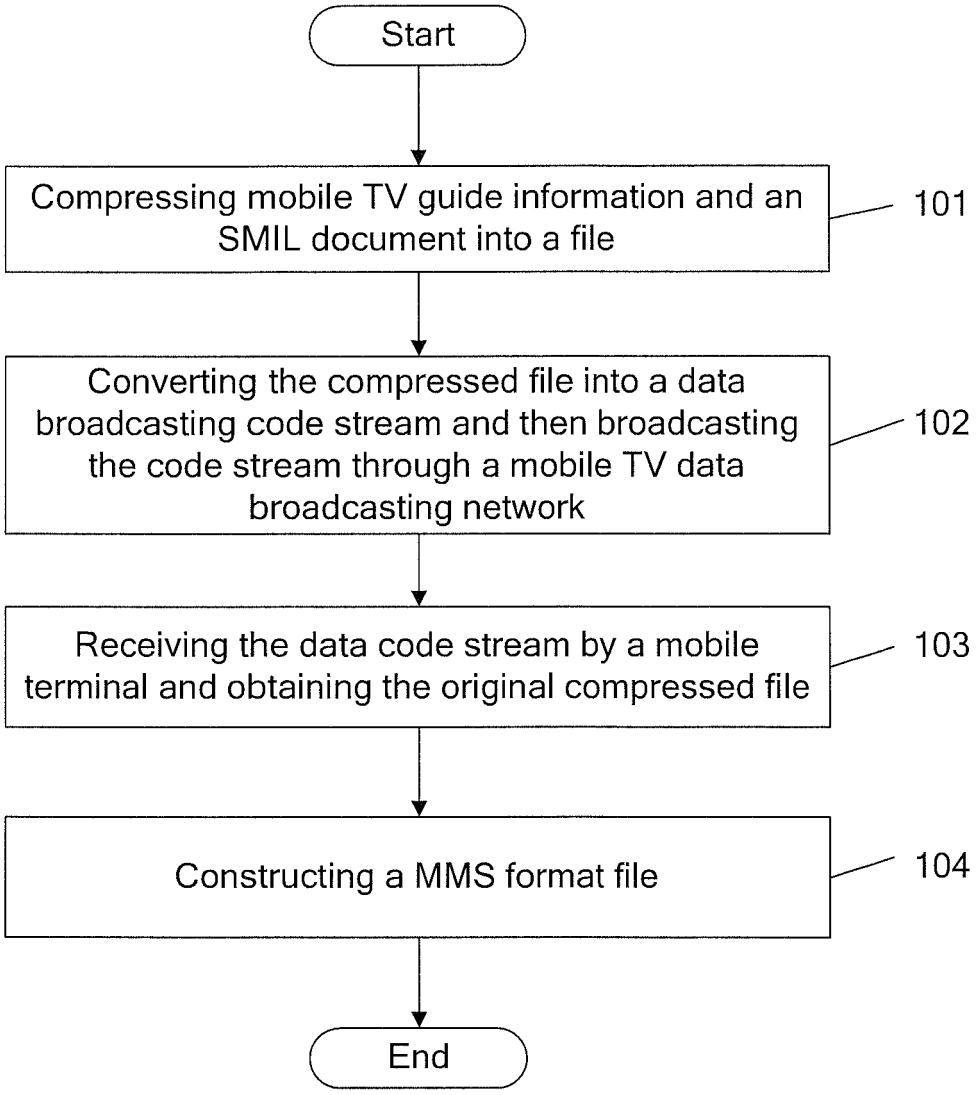

Start
Compressing mobile TV guide information and an SMIL document into a file
101
Converting the compressed file into a data broadcasting code stream and then broadcasting the code stream through a mobile TV data broadcasting network
102
Receiving the data code stream by a mobile terminal and obtaining the original compressed file
103
Constructing a MMS format file
104
End

Fig. 2

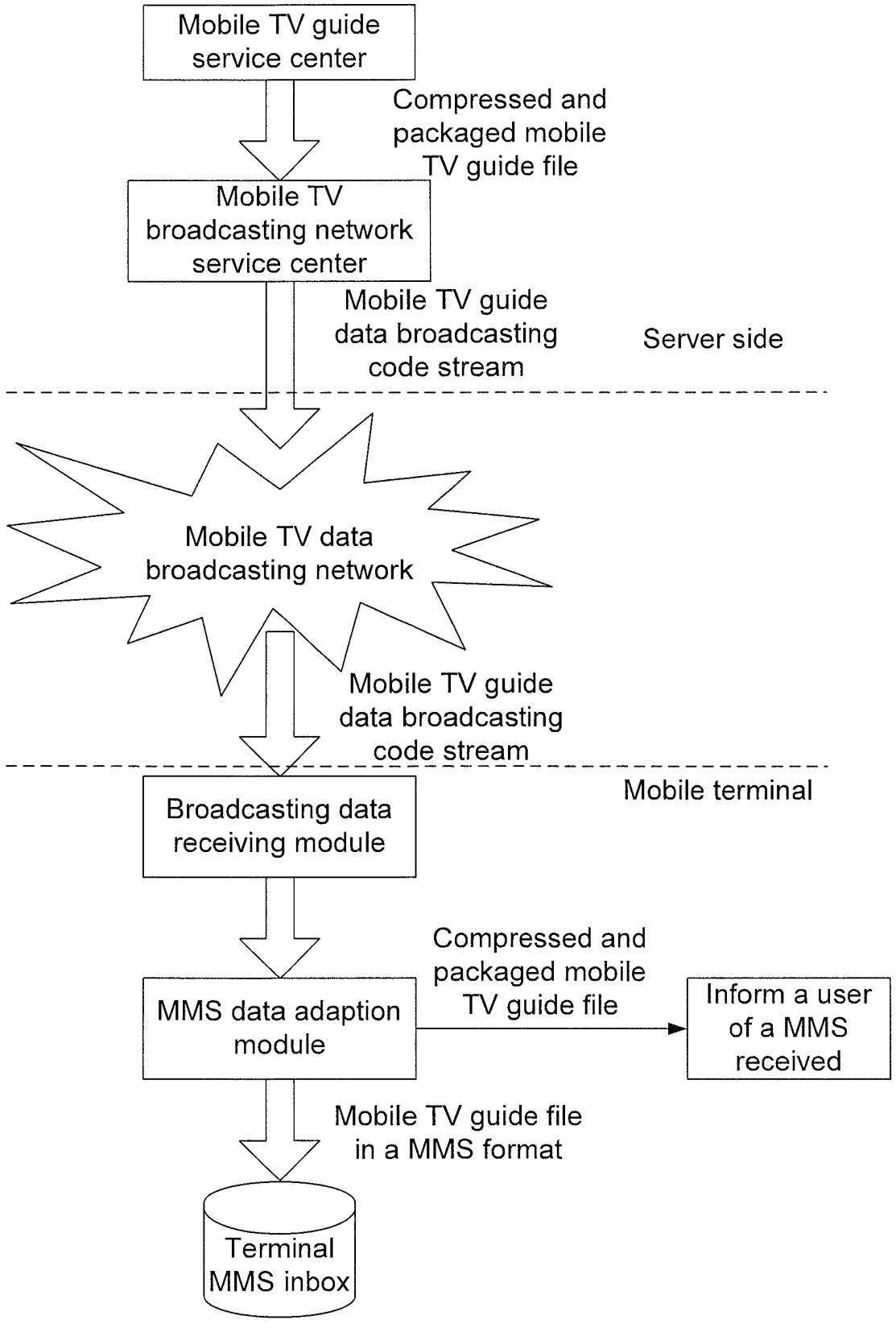
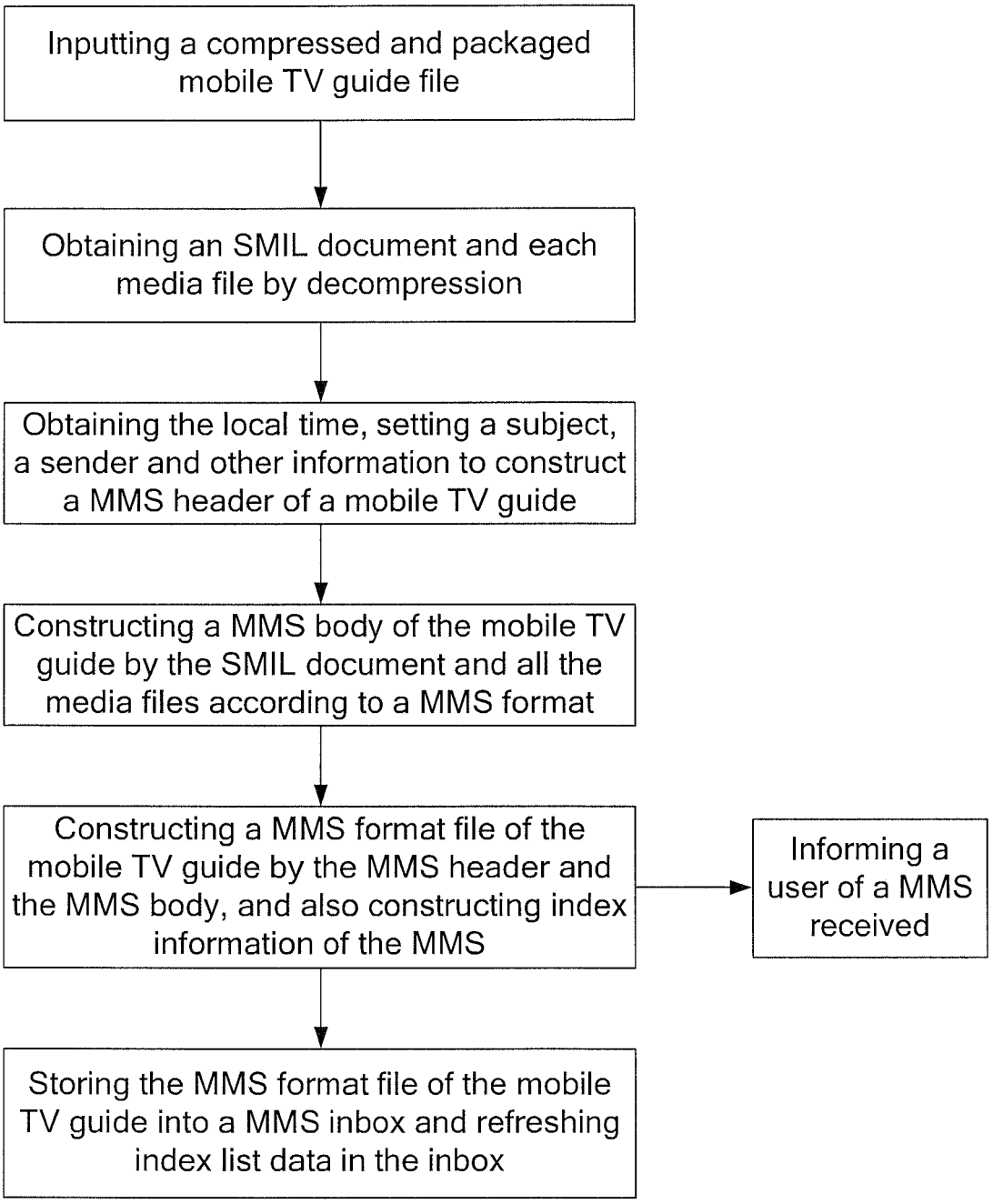

Mobile TV guide service center
Compressed and packaged mobile TV guide file
Mobile TV broadcasting network service center
Mobile TV guide data broadcasting code stream
Server side
Mobile TV data broadcasting network
Mobile TV guide data broadcasting code stream
Mobile terminal
Broadcasting data receiving module
Compressed and packaged mobile TV guide file
MMS data adaption module
Inform a user of a MMS received
Mobile TV guide file in a MMS format
Terminal MMS inbox

Fig. 3


Inputting a compressed and packaged mobile TV guide file
Obtaining an SMIL document and each media file by decompression
Obtaining the local time, setting a subject, a sender and other information to construct a MMS header of a mobile TV guide
Constructing a MMS body of the mobile TV guide by the SMIL document and all the media files according to a MMS format
Constructing a MMS format file of the mobile TV guide by the MMS header and the MMS body, and also constructing index information of the MMS
Informing a user of a MMS received
Storing the MMS format file of the mobile TV guide into a MMS inbox and refreshing index list data in the inbox

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2010/073059

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:H04H/-

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT,WPI,EPODOC,IEEE,CNKI: mobile w phone, cell w phone, television, TV, guide, multimedia w messag+ w service, MMS, SMIL, synchronized w multimedia w integration language, compress+, broadcast+, electronic w service w guide, electronic w program w guide, ESG, EPG, send+, transmit+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN101369859A (ZTE CORPORATION) 18 Feb. 2009(18.02.2009) the whole document	1-9
A	CN1630382A (LG ELECTRONICS CHINA R&D CENTER CO. LTD.) 22 Jun. 2005 (22.06.2005) the whole document	1-9
A	CN101009743A (SAMSUNG ELECTRONICS CO. LTD.) 01 Aug. 2007 (01.08.2007) the whole document	1-9
A	KR10-0793757B1 (LG ELECTRONICS INC.) 10 Jan. 2008 (10.01.2008) the whole document	1-9
A	KR10-2006-0085893A (SAMSUNG ELECTRONICS CO. LTD.) 28 Jul. 2006 (28.07.2006) the whole document	1-9
A	WO2008/005326A2 (LUCENT TECHNOLOGIES INC. et al.) 10 Jan. 2008 (10.01.2008) the whole document	1-9

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 Jun. 2010 (26.06.2010)	**09 Sep. 2010 (09.09.2010)**
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer LI, Wenjuan Telephone No. (86-10)62413506

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2010/073059

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN101369859A	18.02.2009	WO2010034142A1	01.04.2010
CN1630382A	22.06.2005	KR20050060920A	22.06.2005
CN101009743A	01.08.2007	EP1811773A2	25.07.2007
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		JP2009543455T	03.12.2009
		INCHENP200807126E	27.03.2009

Form PCT/ISA /210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
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CLASSIFICATION OF SUBJECT MATTER

H04H60/72(2008.01)i
H04H20/72(2008.01)i

Form PCT/ISA /210 (extra sheet) (July 2009)