

# Eligibility of Software-implemented Utility Model Patents in China

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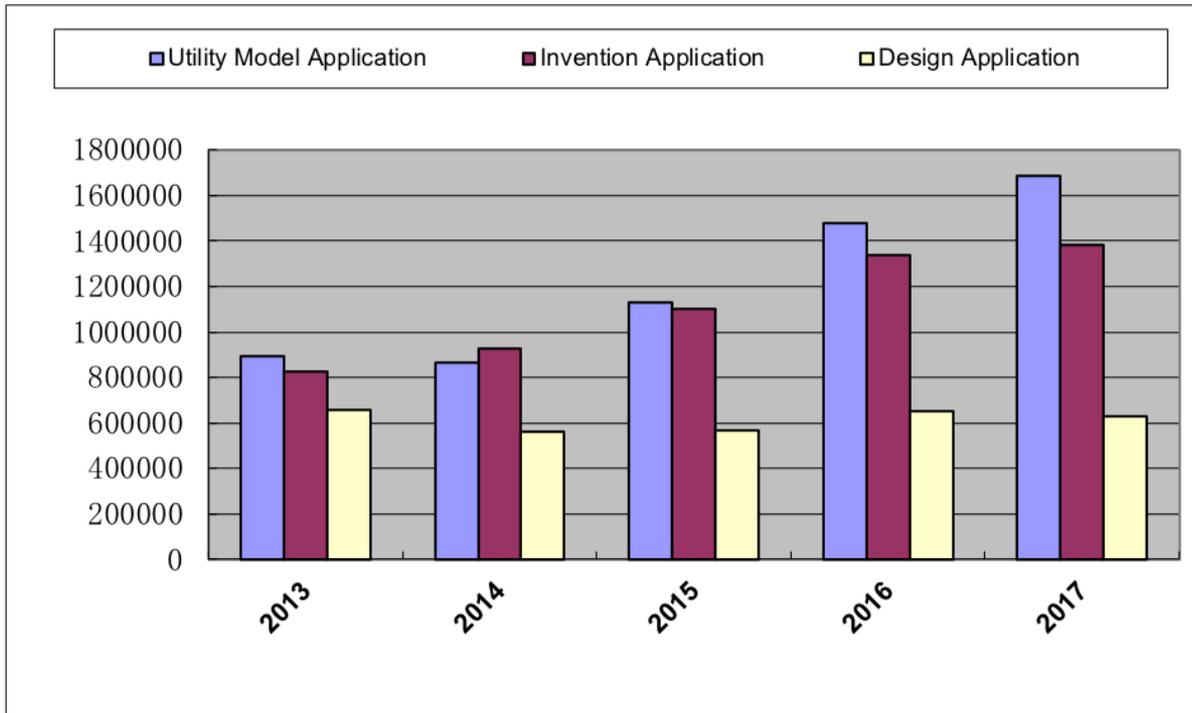
## Agenda

- Basic statistics of UM patents/applications
- Examples of granted UM patents
- Examples of invalidation decisions made by PRB
- Suggestions

## Abbreviation

- UM: Utility Model
- SIPO (State Intellectual Property Office)
- PRB (Patent Re-examination Board)
- A 2.3 (Article 2.3 of Patent Law about definition of UM)
- A 22.2 (Article 22.2 of Patent Law about Novelty)
- A 22.3 (Article 22.3 of Patent Law about Inventive-step)

# Annual applications for three-type patents

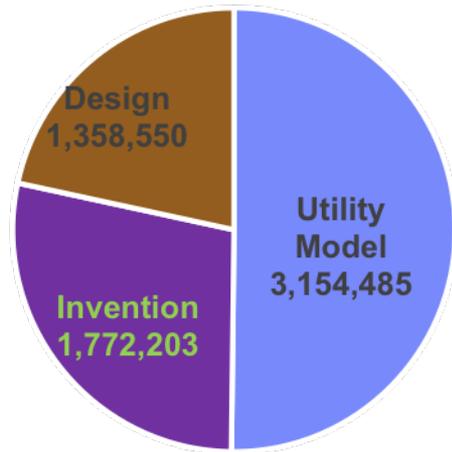


\* Source: [www.sipo.gov.cn](http://www.sipo.gov.cn)

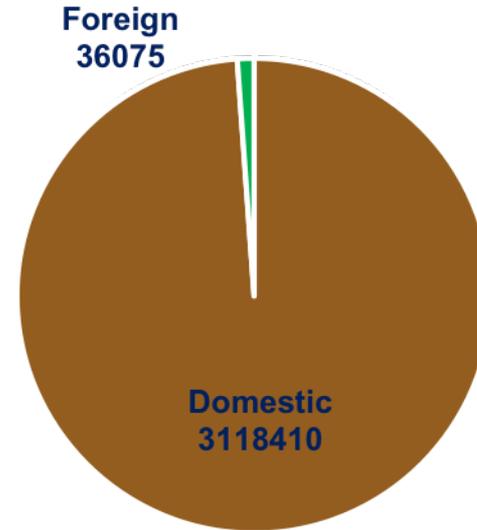
## Distribution of active patents by types

## Distribution of active UM patents by 12-31-2016

### Active Patents by 12-31-2016



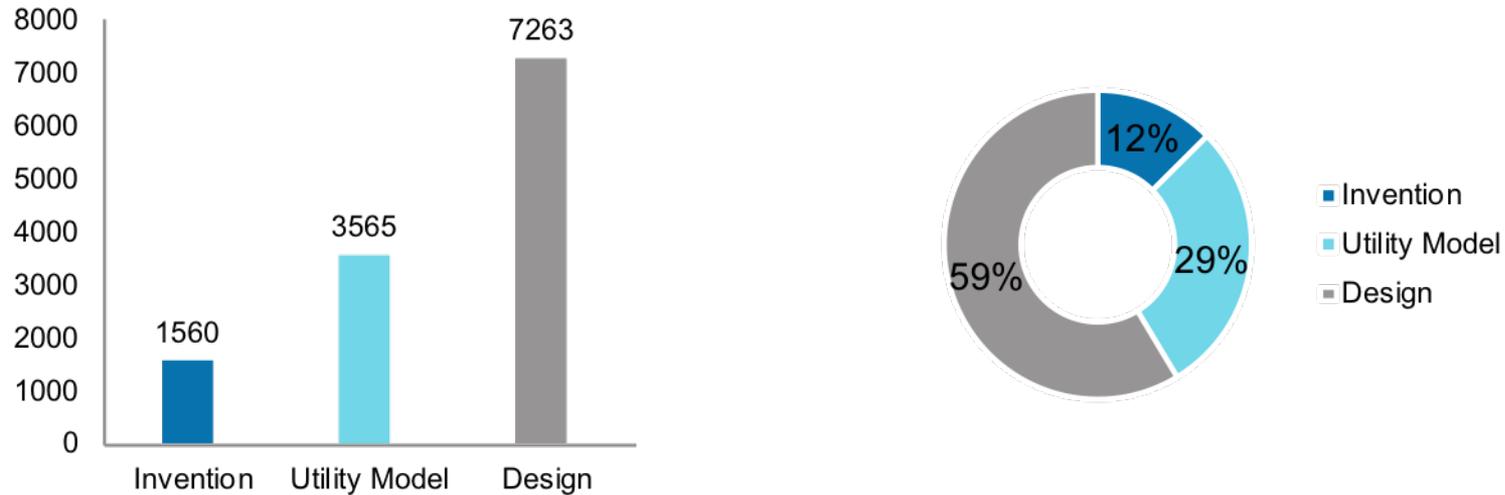
■ Utility Model
 ■ Invention
 ■ Design



■ Domestic
 ■ Foreign

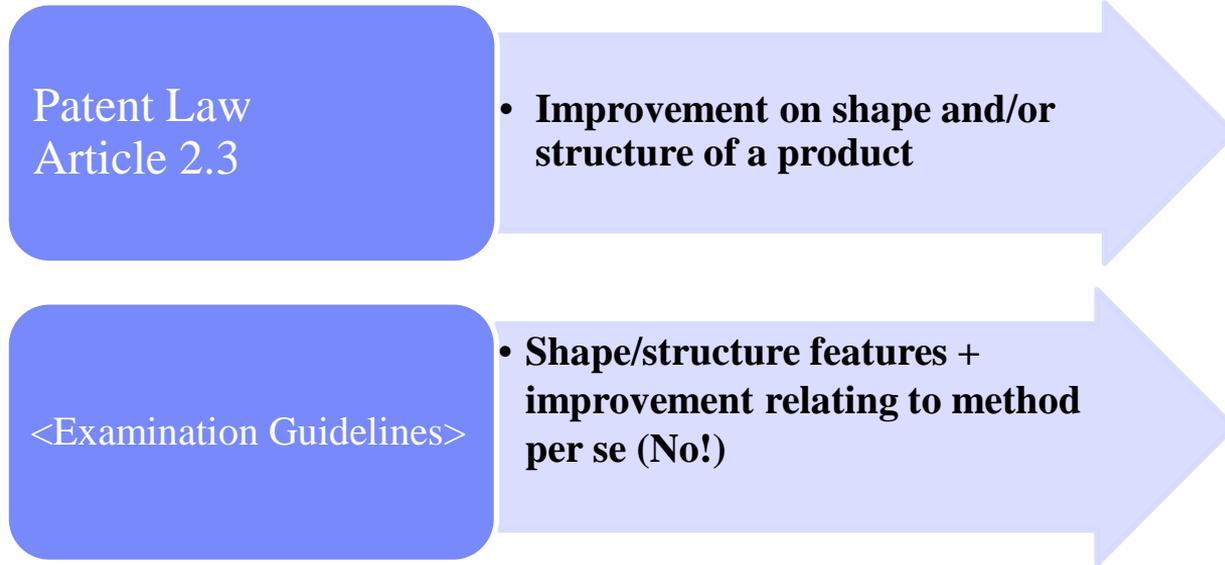
\* Source: [www.sipo.gov.cn](http://www.sipo.gov.cn)

## Number of three-type patents in patent infringement litigations 2015-2017



Source : China Judgements Online  
Time period of the statistics : 2015-2017

## Law and Guidelines - Eligible Subject Matter for UM Patents



(2) If a claim contains not only the features of shape and structure, **but also improvement relating to the method per se**, such as technical features defining the method for making or using product, **or technical features defining computer program**, it does not belong to the subject matter Eligible for patent protection for utility model.

*6.1(2) of Section 1, Chapter 2, Examination Guidelines*

## Example 1 of granted UM patent (granted in 2016)

- Claim 1. A **virtual desktop terminal system** is characterized in that it includes a **shell**, a **virtual desktop server**, a **controller**, a **virtual machine manager**, a **database**, and a **license server** that are arranged in the interior of the shell, wherein the controller **is respectively connected with** the virtual desktop server, the virtual machine manager, the database, and the license server; the license server **is connected with** the virtual desktop server; and the virtual desktop server **is respectively connected with** the virtual machine manager and the database; and the virtual desktop server **is connected to** a switch.
- IPC: G06F9/455 (*Emulation; Interpretation; Software simulation*)
- **Comments:**
  - Except for “**shell**”, all the components in claim 1 are functional components implemented by programs
  - “**connection**” is data input/output relationship rather than physical connection
  - Improvement lies in the combination of functional components and input/output among them

## Example 2 of granted UM patent (granted in 2016)

- **Claim 1. An industrial process automation software development system** is characterized in comprising **a client (100), a server (200)** and a plurality of **project databases (300)**, said client (100) comprising an input unit (101) and a communication unit ( 102) and a storage unit (103) in which **a software development tool (104)** is stored, and both the input unit (101) and the storage unit (103) **are electrically connected to the communication unit (102)** ; the server (200) includes an authorization management unit (201) and a sequentially connected communication interface (202), a service logic processing unit (203), an in-memory database (204) and a database access interface (205), said authorization management unit (201) **is electrically connected to** the service logic processing unit (203), and the communication unit (102) of the client (100) is **in communication connection with** the communication interface (202) of the server (200), and the server ( 200) database access interface (205) **communicates with** the engineering database (300)
- **IPC: G06F9/44** (*Arrangements for executing specific programs*)

## Example 3 of granted UM patent (granted in 2016)

- Claim 1. An **artificial intelligence wake-up device** is characterized in comprising **a sensing device for** sensing external signals; **a self wake-up device for** receiving the external signal, comparing the external signal with a preset threshold, and sending a wake-up instruction when the external signal is greater than the threshold; and **a control device for** receiving the wakeup instruction from the self wake-up device to perform self wakeup.
- **IPC: G06F9/44** (*Arrangements for executing specific programs*)
- Comments: drafted in “means + function” style for software implemented patents.

## Example 4 of granted UM patent (granted in 2017)

- Claim 1. A **blockchain network node service device** for a multi-blockchain platform comprising a **smart contract service logic**, wherein the smart contract service logic is **connected with** a blockchain node, and the blockchain node is connected with a participant node, said participation node include **blockchain node standard data cache** and **blockchain platform expansion interface**.
- IPC: G06Q40/04 (*Arrangements for executing specific programs*)
- Comments:
  - The “**logic**” is implemented by software;
  - The “**interface**” is software interface;
  - The “**cache**” and “**node**” could be implemented by hardware, but there is no specific description in the spec. about these HW features;
  - The improvement lies in software for blockchain technology.

## What if these UM patents are enforced?

- Invalidation under Article 2.3 (definition of UM)?
- Invalidation under novelty/inventive-step – can those software features be excluded in considering the novelty/inventive-step?
  - If yes, easy to be invalid because of the common hardware features
  - If not, contradiction with definition of UM? Is it fair?

## Example 1 of invalidation of UM patent (A 2.3)

- **Claim 1. An anti-theft system** based on Bluetooth communication is characterized by comprising: a **Bluetooth communication module** configured to detect a Bluetooth radio signal transmitted by a terminal device; and a **control module** connected to the Bluetooth communication module configured to collect the Bluetooth radio frequency and determine whether the Bluetooth radio signal is within the preset detection range; and if yes, a disarm mode is entered; if not, an arming mode is entered.
- PRB Decision (A 2.3, A 22.2 and 22.3): Valid (2017.9.4)
- **Requester (A 2.3):** electric circuit is not defined in the claim, nor is any specific structure and physical connection relationship among modules. All the modules are actually virtual modules implemented by computer programs
- **PRB:** (1) the anti-theft system comprises hardware and software; (2) the claim is not directed to improving the computer program though each module is mainly relying on computer program to perform its function
- **How will PRB analyze A22.2 (novelty) and A22.3(inventive-step)?**

## Example 1 of invalidation of UM patent (A 22.2/22.3)

### ▪ PRB's analysis on novelty of claim 1

–Claim 1 v. prior art 1: selection of disarm mode/arming mode (claim 1) v. alarming/not alarming (prior art 1). So Claim 1 has novelty. The different feature is not shape or structure feature but functional feature configured by software.

### ▪ PRB's analysis on inventive-step of claim 1

–Claim 1 is to determine the model of disarm/arming mode, while prior art 1 is to determine whether or not to send alarming. The problem and technical effect are different.  
–No hint to apply the above differential functional feature to prior art 1 so claim 1 has inventive-step.

### ▪ Comments:

–PRB used the **functional feature** of the UM patent to justify its novelty and inventive-step  
–**Substantial lower level of inventive-step:** disarm mode/ arming mode and alarming/ not alarming solve similar problem and achieve similar technical effects. Should it be an invention patent, inventive-step can not be justified.

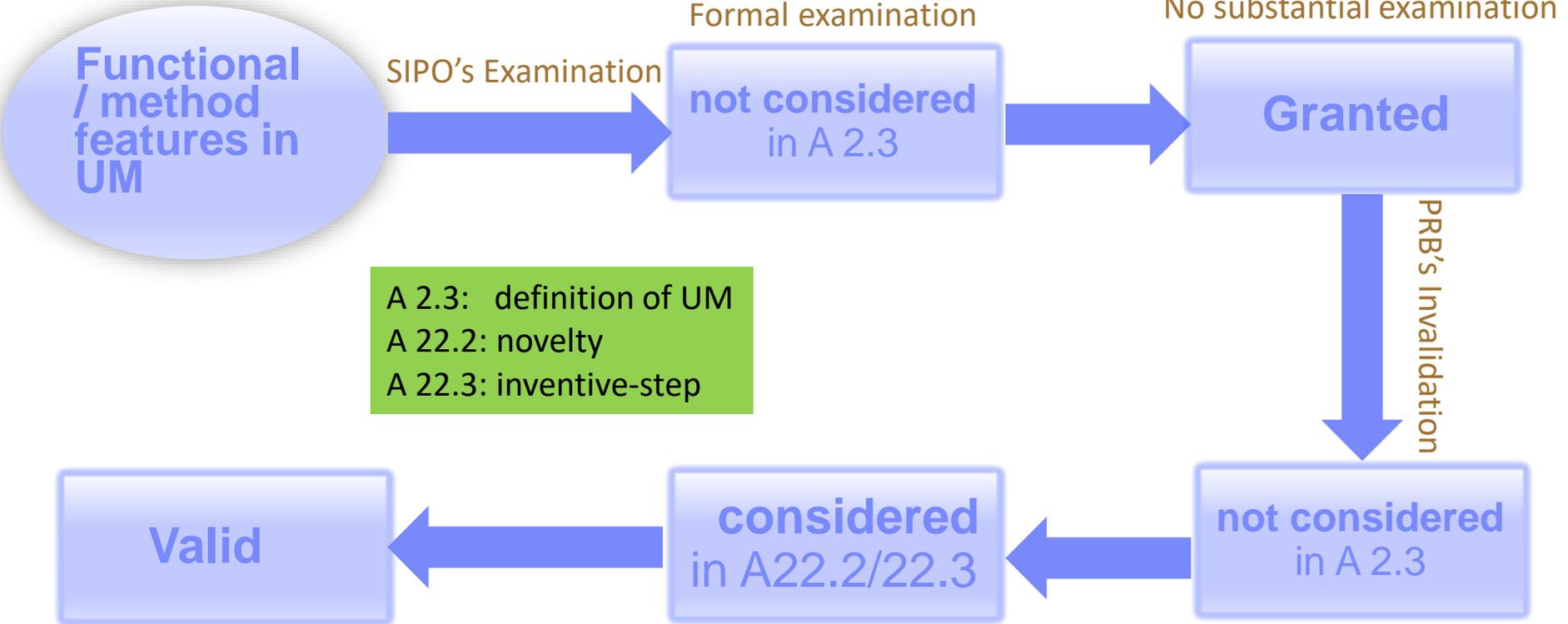
## Example 2 of invalidation of UM patent (claim)

- **Claim 1. A real-time quantification system** for the use behavior of an input device is characterized in conducting real-time quantification of the use behavior....., the system comprises: **at least one input device for controlling the computer device**, each input device carrying at least one **sensing module** and a **wireless communication module**, the **at least one sensing module operates to generate at least one corresponding sensing signal**, and **the wireless communication module receives the at least one sensing signal and operates to wirelessly transmit the at least one sensing signal**; and a **portable electronic device** wirelessly connecting to the at least one input device **to receive the at least one sensing signal**, and the portable electronic device operates to generate at least one graphical representation through real time calculation according to the at least one sensing signal currently received for display on the portable electronic device.
- PRB Decision (A 2.3, A 22.3): Valid (2016.11.25)

## Example 2 of invalidation of UM patent (Article 2.3 and 22.3)

- **Requester (A 2.3):** improvement lies in the software loaded on the portable device
- **PRB:** all the functional features in claim 1 are common knowledge, without improvement on the method per se. So claim 1 can satisfy A 2.3
- **PRB's analysis on inventive step of claim 1:**
  - Major different features between claim 1 and prior art 1: (1) function of sensing module of claim 1 is different from the function of data collection device in prior art; (2) function of portable device (real-time display) is different from the function of personal data accessories in prior art.
  - PRB's analysis on combination of prior art 1 and 2 also focused on “determination and judgment of user's controlling method on the input device” other than hardware structure features
- **Comments:**
  - PRB used functional features implemented by software to justify inventive-step
  - Lower level of inventive-step: the display of data on the device is common knowledge but PRB recognized this as a differentiation feature

# Is it fair?



Lower level of inventive-step  
Difficult to destroy inventive-step

## Suggestions

- Preliminary examination shall strictly follow the definition of UM to avoid ineligible UM patents being granted
- PRB shall strictly follow the definition of UM during invalidation process
- Non-shape/structure features shall not be considered in determining the novelty/inventive-step of UM patents during invalidation process
- Raise the bar of inventive-step for UM to the same as invention patents.